

EXPERIMENTAL FARM NOTES.

unnumbered.

CENTRAL EXPERIMENTAL FARM.

DIVISION OF HORTICULTURE,

DEPARTMENT OF AGRICULTURE.

BLIGHT

OF THE

APPLE AND PEAR.

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1896.

BLIGHT OF THE APPLE AND PEAR.

BY JOHN CRAIG, *Horticulturist*.

During the past few weeks a large number of specimens of apple and pear twigs killed by "blight," variously known under the names of "Apple Blight," "Pear Blight," "Twig Blight" and "Fire Blight," have been received at this office. The leaves have a brown, scorched, but not shrivelled, appearance; the bark, on the other hand, is shrivelled and withered, in addition to being discoloured. The presence of this disease has been noticed in America for more than 100 years. It is easily recognized by the manner of its growth and development upon apple trees, which is usually as follows:—When the tree has made a growth of a few inches, the leaves on some of the young shoots may be observed to suddenly turn brown—in a single night, as it were. If the tree is watched closely this browning will be found to extend downwards upon nearly all of the twigs which have been attacked. In some cases the discolouration of the bark ceases when a larger branch is reached, in other instances the large branch becomes affected, communicating in turn the disease to the stem, in which case the death of the tree may be looked upon as a certainty. Often, however, the scorching and browning affects only the young terminal twigs. Crab trees are frequently affected in this way. It is the least injurious form of the disease. Pears are often attacked in the main branches and on the stems, the disease finding entrance through spurs and tufts of leaves. A tree attacked in this way usually succumbs. Until 1880 nothing was definitely known regarding the nature of the malady. In that year Prof. Burrill, of Illinois, published the first authoritative account of the bacterial or "germ" origin of this disease. Prof. Burrill's investigations were afterwards abundantly corroborated by the careful work of Prof. Arthur at the New York Experiment Station. The disease is known to be caused by a member of the group bacteria now

recognized in science by the name of *Micrococcus amylovorus*, Burrill. Prof. Arthur proved the *contagious* character of the disease, and also its bacterial nature, by artificial cultures in which filtered and unfiltered juices of diseased trees were used to inoculate healthy trees. He found that the disease could only be transmitted artificially by using the juices of branches which contained the characteristic bacteria. This disease finds most congenial conditions for rapid development in fast growing varieties having an abundance of succulent tissue. It usually obtains an entrance by way of the youngest leaves, and sometimes through the blossoms. At this time the wood is in an immature condition. The bacteria causing the disease may remain alive in dead branches on the tree, and also in those which have been removed, and in this way communicate the disease to healthy trees. In addition to apple and pear trees, this disease attacks other members of the rose family, notably hawthorn and mountain ash.

Blight was prevalent throughout Eastern Ontario and the province of Quebec in 1892 and 1893. This year it has caused much damage to apple and pear orchards in Southern Ontario, and has been more or less injurious throughout the whole of Ontario and Quebec.

REMEDIES.

No direct effective remedy is known at the present time.

The following, of a preventive character, should be applied :

1. Prune off and burn all blighted branches as soon as noticed, cutting 12 or 15 inches below the diseased wood as shown by the blackened and shrivelled bark, painting the cut surface with linseed oil.

2. Follow such a system of culture as will tend to produce a moderate growth of well ripened wood.

3. If an orchard which has been cultivated previous to the attack is seriously affected, try seeding to clover for a year; this, coupled with a liberal top dressing of wood ashes, may tend to lessen liability to the disease. In a case of this kind, avoid using barnyard manure.

4. Grow, as far as possible, the varieties which in that particular locality have shown greatest immunity from the disease.

5. In Southern Ontario—where they are not specially needed—Transcendant and Siberian crabs often act as breeding places for the disease, and for this reason should be destroyed.

Further information regarding the disease may be found in the Report of the Horticulturist of the Central Experimental Farm, 1893. Copies of this may be had on application to the Director, or Horticulturist, Central Experimental Farm, Ottawa, as long as the edition lasts.

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