

Proceedings of the Iowa Academy of Science

Volume 1 | Part 1, 1887-1889; (1887) -

Article 42

1889

A Cherry Disease

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Recommended Citation

Pammel, L. H. (1889) "A Cherry Disease," *Proceedings of the Iowa Academy of Science*, 1(Pt. 1), 92-94.
Available at: <https://scholarworks.uni.edu/pias/vol1/iss1/42>

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disease is widespread in both Europe and America.² In Iowa it has been known for some time as Dr. Halsted writes me, and occurs in different parts of the State. Mr. Beach sent some good material from Atlantic. In this abstract I cannot enter into the development of the fungus and its life history nor is it necessary as that is freely given by authors cited in foot-notes. The spores, however, seem to vary considerably. Mr. Kelsey, a special student in the laboratory, found that a good many leaves were uniformly brown, and that such leaves had an abundance of black pustules independent of the spots, and in these the spores were larger and much better developed than in the pustules found in the spots. The disease is known to occur on several species of *Pyrus*, (*cydonia*, *mespilus*), and on a closely related genus *Cotoneaster*. It is quite troublesome at times on the fruit of the quince and pear. It also occurs on the apple (*Pyrus malus*), but is not common. Among a row of seedling pear trees in the college nursery a few apple tree seedlings had accidentally gotten in the leaves of these and they were also affected, though the fungus was found on no other trees on the grounds. Experiments with fungicides have not been made on the grounds, but Galloway³ has recently shown that the application of fungicides at the proper time has proved beneficial.

A CHERRY DISEASE.

BY PROF. L. H. PAMMEL.

(Abstract.)

The past season has been a very severe one on a good many of our cherry trees in the experimental orchards at Ames. Several kinds of parasitic fungi have been especially common.

²—New York; Arthur, Report New York Agricultural Experiment Station, 1834, p. 271. and 1885, p. 276. Illinois, F. S. Earl, Prairie Farmer Feb. 12, 1887. New Jersey; Byron D. Halsted, Rural New Yorker. Georgia, New Jersey; B. T. Galloway, Report the Chief of the Section of Vegetable Pathology, 1888, p. 357. Europe; Sorauer, Pflanzen Krau Rheiten, Second Edition, Vol. II, p. 371. Frank, Die Krau Rheiten der Pflanzen, Vol. II, p. 590.

³—Experiments in the treatment of Pear Leaf Blight and the Apple Powdery Mildew, Circular No. 8, United States Department of Agriculture, Division of Vegetable Pathology.

The "Powdery Mildew," *Podosphaera oxycanthæ*, has been very destructive to many of the seedlings and the leaves of the young terminal shoots of nearly every variety of cultivated cherry on the ground suffered badly. But far more troublesome than the "Powdery Mildew," is the "Imperfect fungus," *Cylindrosporium padi* Karst. Like the pear disease the leaves fall prematurely, which must very materially lessen the amount of starch stored away for future growth and development and a diminished crop of fruit may be expected. I cannot here give a list of the numerous varieties which suffer from it and those which do not. It will be sufficient to state that a large number of varieties on the grounds lost their foliage by the middle of August, while others lost only a small proportion. Scarcely a variety is wholly exempt. The mahaleb had the best foliage, being attacked only to a slight degree and usually only on the lower leaves by this fungus, while it was entirely free from *Podosphaera oxycanthæ*. The disease is very wide spread in this country, while in Europe it appears to cause little trouble judging from the meager account found in European works. Prof. Budd informs me he has been familiar with it for many years and has noticed it especially troublesome on the Early Richmond, Mr. Beach found it on the mahaleb at Atlantic, while Mr. J. S. Harris reports it from La Crescent, Minn. Mr. Ellis⁴ has distributed it from New Jersey. Prof. Arthur⁵ found it very troublesome in New York and in his report has given quite a full account of it. Kellerman⁶ has distributed it from Kentucky. Mr. T. T. Lyon⁷ finds it occurs on the following hosts: *Prunus domestica*, *P. padus*, *P. cerasus*, *P. americana*, *P. armeniaca*, *P. persica*, *P. serotina*. At Ames it has been found most commonly on the cultivated cherry. Mr. Morris, a special student at the laboratory, found it on the

4—North American Fungi, Series II, Cent. XXIII, No. 2281.

5—New York Agricultural Experiment Station, 1886, p. 293, and 1887, pp. 347, 350.

6—North American Fungi, No. 1151.

7—Michigan Horticulturist, Vol. I, 1886, p. 134.

apricot, though only on a few leaves. Little seems to have been written about this fungus. Prof. Arthur gave considerable attention to it but it was first described by Karsten,⁸ but I find few European references. Prof. Peck⁹ described the fungus as *Septoria cerasina*. Some specimens of the Iowa fungus were sent to Mr. Ellis who writes that he compared it with Karsten's *Cylindrosporium padi* with which it agrees and that 1699 of his distribution is apparently the same thing. The specimens on plum collected by Arthur are certainly like the form on cherry only our specimens seem to be a little more vigorous. Arthur¹⁰ considers *Septoria pruni* Ellis, to be a synonym of *S. cerasina*. They are certainly much alike and I think it is safer to refer these *Septoriae* to *Cylindrosporium padi* Karst.

The fungus may be briefly characterized as follows: Dull or red spots make their appearance on the upper surface of the leaves in June and July, later these become brownish, and on examination of the under surface of the leaf a yellowish pustule is readily distinguished. When mature, the epidermal cells become ruptured and a large number of colorless one-celled spores issue. The spores are borne on colorless vertical threads, and usually collect in whitish patches near the pustule. It is easily recognized by this character.

Prof. Arthur considers this fungus to be connected with an ascosporic form, which he has not named. A more detailed account of this stage was given in his Sixth Report. The conidia do not germinate readily, several media were tried but all proved unsuccessful. The leaves on the terminal shoots are usually affected worse than any of the others. In mahaleb the lower leaves on lateral branches are spotted and diseased.

8—Karsten, *Syn. Myc., Fern.* XV. p. 159. Saccardo, *Sylog. Fungorum* III. p. 738. Sorauer, *Pflanzen Krau Rheiten*, Second Edition, Vol. II, p. 424. Roumeguere, *Fungi Europaei precipue Galliae exsiccati Revue Mycologique*, 1888, p. 15.

9—Twenty-Ninth Report New York State Museum of Natural History, p. 48.

10—*Loc. cit.*, 1886, p. 297.