

ADDITIONS TO THE LIST OF PLANT DISEASES OF ECONOMIC IMPORTANCE IN INDIANA.¹

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The following list of plant diseases represents collections and observations made by the writer and other members of the staff of the Department of Botany of the Agricultural Experiment Station at various times during the summer, in connection with other work. With these have been included collections made by students in the Department of Biology of Purdue University under the direction of Prof. G. N. Hoffer to whom thanks are due for his hearty co-operation.

The past season was extremely dry and hot during the mid summer months, thus reducing materially the damage due to fungus and bacterial diseases. However, in spite of this dry weather, several plant diseases, new to Indiana, were discovered that were causing very material loss to the crops concerned. These losses are mentioned in the proper place in the following list.

It is hoped to add to this list from year to year until a more or less complete survey of the important plant diseases of this state shall have been obtained. Specimens of the plant diseases listed are retained in the herbarium of the Department of Botany, Agricultural Experiment Station, of Purdue University where they are available for examination by any one interested. Unless otherwise stated, the collections were made by the writer.

APPLE, (*Pyrus Malus* L.)

Leaf Spot.

Coniothyrium pirinum Shel. Scott, White, July, 1916; Tippecanoe, Sept., 1916; Boone, July, 1916 (P. S. Lowe). This disease was quite common during the past season.

Coryneum foliicolum Fekl. Boone, August, 1916 (P. S. Lowe). This fungus was found accompanying *Coniothyrium pirinum* Shel. and *Phyllosticta pirina* Sacc. (See also under pear.)

Illosporium malifoliorum Shel. Jefferson, Sept., 1916 (E. Coppess).

Phyllosticta pirina Sacc. Boone, July, 1916 (P. S. Lowe); Wayne, August, 1916 (R. E. Wilson). This fungus frequently accompanies *Sphaeropsis Malorum* Pk. and *Coniothyrium pirinum* Shel.

BEAN, (*Phaseolus vulgaris* L.)

Blight.

Bacterium Phaseoli E. F. Sm. Marshall, August, 1916; Pulaski, Tippecanoe, Sept., 1916; Sullivan, July, 1916 (J. C. Summers); Boone, August, 1916 (P. S. Lowe). This disease caused quite severe loss in northern Indiana during the past season.

1. This list is supplementary to "A List of Plant Diseases of Economic Importance in Indiana" by F. J. Pipal. Ind. Acad. Sci. Proc. 1915.

BLACKBERRY, (*Rubus allegheniensis* Por.)

Leaf Spot.

Cercospora Rubi Sacc. Tippecanoe, Sept., 1916 (J. C. Summers).

CARNATION, (*Dianthus caryophyllus* L.)

Stem rot.

Corticium vagum B. & C. Tippecanoe, Sept., 1916 (C. C. Rees). This disease was observed in one of the greenhouses belonging to Purdue University. (See under celery and potato for additional notes on this fungus).

CARROT, (*Daucus carota* L.)

Leaf blight.

Cercospora Apii var. *Carotae* Pass. Marshall, Sept., 1916; Tippecanoe, Sept., 1915 (H. S. Jackson).

Macrosporium Carotae E. & L. Marshall, Sept., 1915. This disease was quite abundant in 1915.

CELERY, (*Apium graveolens* L.)

Stem rot.

Corticium vagum B. & C. Elkhart, Oct., 1916. This disease caused heavy loss on much farms during the past season to the celery growers around Goshen, Ind. The disease was favored by the cold, wet weather of late spring and early summer. (See also under carnation and potato).

CHERRY, (*Prunus* sp.)

Shot hole.

Cercospora circumscissa Sacc. Marshall, Sept., 1916.

CITRON, (*Citrus Medica* var. *genuina* Eng.)

Anthracnose.

Colletotrichum Lagenerium (Pass.) E. & H. Marshall, Sept., 1916. The vines were almost entirely killed in some cases. (See also under gourd and pomegranite melon).

CLOVER, RED (*Trifolium pratense* L.)

Leaf spot.

Pseudopeziza Trifolii (Bernh.) Fekl. Marshall, June, 1916.

CLOVER, WHITE (*Trifolium repens* L.)

Slime mold.

Physarum cinereum (Batsch) Pers. Lagrange, July, 1915 (B. M. Reed). The leaves of the white clover were so completely covered by the plasmodium and sporangia of this slime mold that they were much injured, or in some cases completely killed. This trouble has been reported previously on blue grass.²

COWPEA, (*Vigna sinensis* [L.] Endl.)

Leaf spot.

Amerosporium oeconomicum E. & T. Sullivan, June, 1916 (J. C. Summers).

Phyllosticta phascolina Sacc. Tippecanoe, October, 1916 (J. C. Summers).

2. Pipal, F. J. Ind. Acad. Sci. Proc. 1915.

CUCUMBER, (*Cucumis sativus* L.)**Leaf spot.**

Cercospora Cucurbitae E. & E. Marshall, St. Joseph, Sept., 1916. This disease was found in a number of fields but was not of great economic importance as it produced only an occasional spot on the leaves. (See also under gourd, muskmelon and squash).

CURRANT, RED (*Ribes vulgare* Lam.)**Leaf spot.**

Cercospora angulata Wint. Tippecanoe, Sept., 1916 (J. C. Summers).

DILL, (*Anethum graveolens* L.)**Phoma disease.**

Phoma Anethi Sacc. Marshall, Sept., 1915. Every plant was severely diseased in a field near Plymouth, Ind.

EGG PLANT, (*Solanum melongena* L.)**Leaf spot.**

Phyllosticta hortorum Speg. Marshall, August, 1916.

GINSENG, (*Panax quinquefolium* L.)**Alternaria blight.**

Alternaria panax Whet. Green, July, 1911 (D. W. Solliday).

GOURD, (*Cucurbita Pepo* L. and *Lagenaria vulgaris* Ser.)**Leaf spot.**

Cercospora Cucurbitae E. & E. Marshall, Sept., 1916. (See also under cucumber, muskmelon and squash).

Anthraxnose.

Colletotrichum Lagenarium (Pass.) E. & H. Marshall, August, 1916. Around Plymouth, Ind., this disease was very severe on both leaves and fruit during the past season. This fungus was also collected at Plymouth, August, 1916, on the following hosts: Chinese watermelon (*Benincasa Cerifera* Savi), mango melon (*Cucumis Melo* var. *Chilo* Naud.), balsam apple (*Momordica Balsamina* L.), and balsam pear (*Momordica Charantia* L.) See also under citron and pomegranite melon. This disease has been reported previously on cucumber, muskmelon and watermelon.³

HOLLYHOCK, (*Althea rosea* Cav.)**Leaf spot.**

Cercospora kellermani Bub. Boone, August, 1916 (P. S. Lowe.)

HORSERADISH, (*Radicula amoracia* L.) (Rob.)**Leaf spot.**

Macrosporium herculeum E. & M. Marshall, August, 1916. This disease was quite severe last season.

LIMA BEAN, (*Phaseolus lunatus* var. *macrocarpus* Benth.)**Blight.**

Bacterium Phaseoli E. & F. Sm. Marshall, Starke, Sept., 1916. This disease almost ruined the crop in some gardens near Plymouth, Ind., last year. (See also under bean.)

3. Pipal, F. J. Ind. Acad. Sci. Proc. 1915.

MILLET, (*Setaria Italica* [L.] Beauv.)

Leaf spot.

Piricularia grisea (Cke.) Sacc. Marshall, August, 1916; Laporte, Sept., 1916. This disease was very severe in some fields during the past season.

MUSKMELON, (*Cucumis Melo* L.)

Leaf spot.

Cercospora Cucurbitae E. & E. Starke, Sept., 1916. (See also under cucumber, gourd and squash).

Mosaic.

Cause not known, Marshall, July, 1916. This disease has been reported previously on cucumber.⁴

OATS, (*Avena sativa* L.)

Leaf spot.

Helminthosporium Avenae Ei. Marshall, June, 1916. This disease was quite common in oat fields last summer.

ONION, (*Allium Cepa* L.)

Scab.

Vermicularia circinans Berk. Jefferson, April, 1916 (J. B. Demaree).

ORCHARD GRASS, (*Dactylis glomerata* L.)

Ergot.

Claviceps microcephala (Wal.) Tul. Tippecanoe, July, 1916. (See also under timothy).

Leaf spot.

Scolecotrichum graninis Fekl. Marshall, June, 1916; Tippecanoe, July, 1916. This disease has been reported previously on timothy, blue grass and *Poa nemoralis*.⁵

PEAR, (*Pyrus communis* L.)

Leaf spot.

Coryneum foliicola Fekl. Tippecanoe, Sept., 1916 (J. C. Summers). (See also under apple).

PEPPER, (*Capsicum annuum* L.)

Mosaic.

Cause not known. Marshall, Sept., 1916. Specimens of this disease were also collected on pokeweed (*Phytolacca decandra* L.), Marshall, July, 1916. This disease has been reported previously on tomato.⁶

PLUM, (*Prunus* sp.)

Bacterial leaf spot.

Bacterium Pruni E. F. Sm. Marshall, June, 1916; Carroll, Sept., 1916 (G. N. Hoffer). This disease has been reported previously on the peach.⁷

4. Pipal, F. J. Ind. Acad. Sci. Proc. 1915.

5. Underwood, L. M. Ind. Acad. Sci. Proc. 1893:48.

Pipal, F. J. Ibid 1915.

6. Pipal, F. J. Ind. Acad. Sci. Proc. 1915.

7. Pipal, F. J. Ind. Acad. Sci. Proc. 1915.

POMEGRANITE MELON. (*Cucumis Melo* var. *Dudaim* Naud.)**Angular leaf spot.**

Bacterium lacrymans Sm. & Bry. Marshall, August, 1916. This disease has been reported previously on cucumber.⁸

Anthraco nose.

Colletotrichum Lagenerium (Pass.) E. & H. Marshall, August, 1916. This disease was severe on fruit, stems and leaves last season. (See also under citron and gourd).

POTATO, (*Solanum tuberosum* L.)**Russett scab.**

Corticium vagum B. & C. Tippecanoe, April, 1916; Marshall, Sept., 1916; Jefferson, April, 1916 (J. B. Demaree). (See also under earthen and celery).

RASPBERRY, (*Rubus* sp.)**Anthraco nose.**

Gloeosporium naviculisporum Ston. Boone, August, 1916 (P. S. Lowe). This disease may be readily distinguished from the ordinary anthracnose caused by *Gloeosporium venetum* Speg. by the fact that the acervuli are scattered indefinitely over the stem or leaf, rather than being confined to definite spots.

RED TOP, (*Agrostis alba* var. *vulgaris* [With.] Thurb.)**Leaf spot.**

Scolecotrichum graminis Fekl. Marshall, June, 1916. (See also under orchard grass).

ROSE, (*Rosa* spp.)**Spotting.**

Pilobolus Oedipus Mont. Tippecanoe, May, 1916. This fungus has been found causing more or less damage to roses in greenhouses around Lafayette, Ind. While not parasitic upon roses, the spore heads of the fungus are shot up on to the leaves and flowers, in some cases covering them thickly with black specks and decreasing the value of the flowers.

Leaf spot.

Phyllosticta Rosae Desm. Boone, August, 1916 (P. S. Lowe), on cultivated roses.

Cercospora rosicola Pass. Tippecanoe, Sept., 1916 (J. C. Summers), on *Rosa nitida* Willd. While the fungus was collected only on the wild rose, it is known to cause a disease of cultivated roses as well.

SALSIFY, (*Tragopogon porrifolius* L.)**White rust.**

Albugo Tragopogonis (D. C.) S. Gray, Clay, June, 1916 (W. B. Gillespie). This disease has been reported previously on *Ambrosia artemisiifolia*.⁹

8. Pipal, F. J. Ind. Acad. Sci. Proc. 1915.

9. Wilson, G. W. Ind. Acad. Sci. Proc. 1907:82.

SQUASH, (*Cucurbita* spp.)**Leaf spot.**

Cercospora Cucurbitae E. & E. Marshall, Sept., 1916; Boone, Sept., 1916 (P. S. Lowe). (See also under cucumber, muskmelon and gourd).

Septoria Cucurbitacearum Sacc. Starke, Sept., 1916, on *Cucurbita maxima* Duch. This disease was abundant in one truck garden.

STRAWBERRY, (*Fragaria* sp.)**Leaf spot.**

Marsonia Potentillae var. *Fragariae* Sacc. Lake, July, 1916.

SWEET CLOVER, WHITE (*Melilotus alba* Desr.)**Leaf spot.**

Ascochyta caulicola Lau. Tippecanoe, May, 1916 (H. S. Jackson).

Cercospora Davisii E. & E. Tippecanoe, July, 1916.

TIMOTHY, (*Phleum pratense* L.)**Ergot.**

Claviceps microcephala (Wal.) Tul. Marshall, August, 1916. (See also under orchard grass).

VETCH, (*Vicia villosa* Roth.)**Leaf spot.**

Ascochyta Pisi Lib. Marshall, June, 1916. This disease has been reported previously on peas.¹⁰

WATERMELON, (*Citrullus vulgaris* Schrad.)**Leaf Spot.**

Cercospora citrullina C'ke. Marshall, August, 1916.

10. Pipal, F. J. Ind. Acad. Sci. Proc. 1915.