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THE PLANT DISEASE BULLETIN

Issued By

The Plant Disease Survey

SUPPLEMENT 5

Summary of Plant Diseases in the United States
in 1918 -- Diseases of Fiber Crops, Forest Trees,
Ornamental and Miscellaneous Plants

July 1, 1919

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

SUMMARY OF PLANT DISEASES IN THE UNITED STATES IN 1918.

V. DISEASES OF FIBER CROPS, SUGAR CROPS, FOREST TREES,
ORNAMENTAL AND MISCELLANEOUS PLANTS.

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DISEASES OF FIBER CROPS

COTTON

Wilt caused by Fusarium vasinfectum (Atk.)

Wilt was reported during 1918 in Virginia, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Oklahoma and Arkansas.

It was said to have been the worst cotton disease in Alabama, Mississippi and Arkansas.

In Virginia wilt was important, causing considerable injury in some fields. In Tennessee the damage was severe locally. In North Carolina it was local and moderately severe. In South Carolina it was very common below the Fall Line. In Georgia it was common, especially in the southern districts. Many fields in the Coastal Plain, belonging to the small tenant farmer, were a total failure. In Alabama it was general throughout the southern part of the state. In Mississippi it was widespread but present only in small amounts. In Louisiana it was very common and is spreading. In Texas it was somewhat scarce, but was serious where it occurred. In Oklahoma it was reported from Atoka, Bryan and Choctaw Counties where there were slight infections. In Arkansas it was general but severe only in the eastern and southern counties.

Favorable weather conditions were reported from Alabama, where it was dry and hot; while in Mississippi, Texas and Oklahoma the weather was reported to have been unfavorable for the development of the fungus.

Dates of first appearance of wilt:

1914 - June 20.....South Carolina	1917 - July.....Louisiana
July 23.....Mississippi	July.....Arkansas
1915 - June.....Mississippi	1918 - June.....Louisiana
June.....Louisiana	June 13...Mississippi
1916 - June.....South Carolina	July 20...Tennessee
June.....Louisiana	August 20..Georgia
July 12.....Georgia	October...Oklahoma
1917 - July.....Mississippi	

Wilt resistant varieties are said to be giving excellent results in South Carolina, Georgia and Arkansas.

Anthracnose caused by Glomerella gossypii (South.) Edg.

Anthracnose was found in 1918 in all the South Atlantic and Gulf states except Oklahoma.

It was common in Tennessee, South Carolina, Georgia, Florida, Mississippi, Texas and Arkansas. The disease was locally severe in Virginia, South Carolina and Mississippi, and was generally very serious in Georgia. There was less in Alabama than in 1917.

The loss in Virginia averaged about 1%, although it was one of the most important cotton diseases in the state. In Tennessee the crop injury averaged 5% with an estimated loss of 10,000 bales. In South Carolina the loss was around 1%, the average crop injury amounting to about 10%. In Georgia the estimated loss for the state was about 8%. In Florida the disease destroyed as high as 6% to 7% of the crop in some instances. In Alabama a field count was made by Mr. Armstrong on the Station Farm which was as follows:

Three rows of Kings Triumph.

Number of stalks counted.....	102
Number of stalks with one or more infected bolls.....	26
Percent of stalks with affected bolls.....	25.4
Estimate of damage.....	5-8%

In Mississippi the damage varied from 1 or 2% to 15 and 20%. In Louisiana there was a fairly large crop injury but the loss was slight, about 1-2%. In Texas about 2% of the crop was injured. In Arkansas there was only a trace of injury.

Unfavorable weather conditions were said to have prevailed in Tennessee, South Carolina, Florida (cold spring), Alabama; and the first part of the season in Georgia and Louisiana, but later on rains allowed rapid development of anthracnose. In Georgia the weather was rather favorable. Drought was apparently instrumental in keeping down the disease in Texas.

Anthracnose was worst in South Carolina and Mississippi on low ground's and situations where the cotton was subject to overflow during wet weather or when rank growth existed. There was often an association of the disease with *Cercospora* and insects in Georgia. It was especially bad on seedlings in Florida during 1918. The severe outbreaks were thought to indicate that the disease was introduced by means of infected seed.

Where "gin run" seed was used to any extent in Mississippi the disease appeared to be worse.

Dates when anthracnose was first observed by collaborators in 1914 to 1918 inclusive are as follows:-

<u>1914</u>		<u>1917</u>
July.....Mississippi		July.....Louisiana
August 10.....South Carolina		July.....Arkansas
August 12.....Texas		July 15.....Tennessee
<u>1915</u>		August 20.....North Carolina
July.....Louisiana		September.....Oklahoma
July 19.....Georgia		<u>1918</u>
August.....Mississippi		June.....Florida
September 20.....Texas		June 4.....Georgia
September 30.....Oklahoma		July.....Louisiana
<u>1916</u>		July 24.....Mississippi
May 8.....Georgia		August 15.....Tennessee
August.....Louisiana		September 9.....Virginia
August 1.....South Carolina		
September 30.....Virginia		

The Half and Half variety was severely injured in North Carolina where infection on this variety ran as high as 50%; while on other varieties it was usually less than 5%, and on special selections less than 1%. All varieties were reported to be susceptible in Georgia.

Seed selection as a means of control has been used in South Carolina but its use there is not a general practice.

Angular leaf spot and boll rot caused by Bacterium malvacearum E.F.S.

This disease was widely distributed throughout the cotton growing states. It was reported found in Virginia, Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Louisiana, Texas, Oklahoma and Arkansas.

It was generally prevalent in Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Oklahoma and Arkansas, and it was reported to have been common in Virginia, Florida and Texas.

The loss, judging from the reports received, was apparently less than for 1917. Little damage was done in Virginia, Mississippi and Arkansas. In Tennessee there was a 10% crop injury, but the loss was only about 1%. In Georgia there was an occasional 50% defoliation while the loss only amounted to about 1.5%. In Alabama it was severe the early part of the season. This was especially true at Uniontown (Perry County) where a field of variety tests showed uniform infection of about 95% of the plants, fully 20% of the leaves on these plants showed spots. In Louisiana there was considerable injury. In Oklahoma infection ranged from a trace to 100%, although it was not so bad as in 1916 and 1917.

In North Carolina the leaves were the principal part affected. Premature shedding was occasioned in some cases in South Carolina. It was often associated with red spider and plant lice in Georgia.

Unfavorable weather conditions were reported from Tennessee, South Carolina, Alabama, Texas, Oklahoma and Arkansas. In these states the season was hot and dry. There was considerable drought in Texas, which assisted in keeping the disease down. In Louisiana there was some rain which helped to spread the causal bacteria. It was first noticed in May in Alabama, Georgia and Oklahoma.

According to reports received from South Carolina, Georgia and Oklahoma, there was no varietal resistance noted in the respective states.

Perfect control is reported by the use of the method of seed treatment worked out at Clemson College.

Malnutrition (Non-parasitic)

Malnutrition troubles supposedly due to the lack of the proper proportions of potash in the soil, were found from Tennessee down through the South Atlantic Coast and Gulf states, excepting Florida and including Arkansas. From all reports it had a greater distribution than in 1917.

More loss was apparently caused in 1918 to the cotton crop by this trouble than any other disease, and from reports seemed to have caused an equal or perhaps a greater amount than in 1917. Large losses occurred in North Carolina, South Carolina, Georgia, Alabama, Mississippi and Louisiana. In South Carolina fields in the Coastal Plain section were completely defoliated. Louisiana suffered more from the trouble than at any time during the past eleven years.

Various factors seemingly affected the prevalence and degree of severity of the disease. Thus in South Carolina it was reported to have been more prevalent on sandy soils than on soils where the clay subsoil lay near the surface. In Arkansas the "buck shot" lands and river bottoms afford favorable conditions to bring about severe damage to the crop. Although malnutrition in Louisiana was severe on poor ground it also occurred on fairly rich ground and on some that analyzed rich in potash.

Dry weather and cultural conditions were the indirect sources in Alabama of severe outbreaks of malnutrition since there seemed to be enough available potash in the soil.

The susceptibility of plants suffering from malnutrition to Cercospora gossypina, Alternaria sp. and other diseases, complicates the estimating of the true loss produced by the trouble itself.

Root-knot caused by Heterodera radicum (Greef.) Mull.

Root-knot was reported in 1918 from North Carolina, South Carolina, Georgia, Florida, Alabama, Louisiana, Texas and Arkansas.

In Georgia it was general in the southern part of the state. In Louisiana there was very little. In Texas it was scarce. In Arkansas it was found in many sections, but not at all serious. As usual it occurred mostly on the sandy soils and was often associated with wilt.

In South Carolina the loss was about 2%, and in individual cases the crop injury ran as high as 100%.

The weather was said to have been favorable in South Carolina, but unfavorable in Texas on account of the drought.

Dixie cotton was apparently quite susceptible to root-knot as the disease was especially prevalent where this variety had been used to evade wilt.

Other diseases.

Root rot, caused by Ozonium omnivorum Shear was reported in 1918 from Texas, Oklahoma (first report) and Arkansas.

In Texas there was apparently less than the usual amounts. The disease was found in Waco County on the same spots where it had occurred during the past years. In Oklahoma it was found in three counties in the southeastern section of the state, causing some loss. In Arkansas it appeared in the southwestern corner of the state.

Drought conditions which existed in Texas assisted apparently in preventing the usual development of root rot. In Oklahoma the weather was unfavorable due to the dry, hot weather conditions during the cotton season.

Earliest appearance, October, in Oklahoma.

Leaf spot, caused by Cercospora gossypina, was found in North Carolina, South Carolina, Texas and Oklahoma. It was local and unimportant except in North Carolina where in certain localities of the Coastal Plain and in part of the Southern Piedmont district it caused some damage.

Alternaria leaf spot appeared during 1918 in sufficient amounts to be of economic importance in Louisiana, Oklahoma and Arkansas. It occurred as a secondary infection, often following angular leaf spot.

Shedding of the squares and bolls was apparently the worst and most general cotton trouble in Mississippi during 1918. The same trouble was prevalent in 1913 throughout Arkansas, where it has occurred for a number of years but only occasionally occurring in amounts to cause any appreciable loss. The squares and bolls fall and often remain hanging to the plant by a shred of the epidermal tissue.

"Black seed", a name given by the planters for a run down condition, was noticed in a few fields in 1918 in South Carolina. The seed produces practically no lint and plants growing from such seed are usually small and stunted.

FLAX

Wilt caused by Fusarium lini Bolley

Wilt was reported from Minnesota, North Dakota and Montana. In Minnesota the disease was general and probably more abundant than in 1917. About 2% of the crop was reported injured. In Montana the disease was said to be prevalent about as usual, affecting less than 1% of the crop.

The following report from H. L. Bolley, dated September 1, 1918, shows his views on the subject: "Fusarium lini and possibly allied species is the chief limiting factor in flax crop production in the Northwest. Ordinary weather conditions are such that a sufficient crop of seed would be produced for the supply of the nation by the states of Montana, North Dakota, South Dakota and Minnesota. Fusarium lini occupies new areas of land, reducing them to utter unproductivity so far as flax is concerned unless the most rigid tillage and crop rotation is introduced and a resistant form of seed is used. In dry years it works in the ground and makes blighting of the entire crop a certainty. In wet years it brings about root rot and makes absolute elimination of all those areas, the soil of which is generally infested. The organism is wind blown, water washed, seed carried, and when once introduced in fertile soils is very persistent."

Rust caused by Melampsora lini D.C.

Occurred in Minnesota, North Dakota, Montana and probably other flax

states. In Minnesota and Montana the disease was said to be of no especial importance but in North Dakota it was said to be rather more common than usual. With regard to the occurrence of rust in that state Bolley says:

"*Melampsora* is very destructive, particularly under rather constant flax culture. It accumulates in the old straw and in regions where flax is rather constantly grown it becomes accentuated and at times very destructive. In some respects it seems to be more destructive under dry soil and weather conditions than under a moist environment. The foliage and stems do not seem to be able to withstand the rust in hot, dry weather with the result that the plants are speedily defoliated and lose the seed-forming power."

Canker caused by *Colletotrichum lini*. Bolley.

Flax canker, which was reported from both North Dakota and Montana, was said to be the worst flax disease in the latter state. From 2 to 3% of the plants were killed and the average percentage of crop injury for the state was placed at 10%. According to Bolley this disease attacks the stems, often causing the plants to break over. The organism is seed borne, water washed and soil carried and is similar in its action upon its host to many other species of *Colletotrichum*.

DISEASES OF SUGAR CROPS

SUGAR CANE

Red rot, caused by *Colletotrichum falcatum* Went., was reported from Porto Rico, Florida, Louisiana and Texas. In Texas it was said to have followed attacks of sugar cane borer.

Root rot, caused by *Marasmius plicatus* Wak., was reported from Georgia, Porto Rico and Louisiana. In Georgia it was said to be general, producing at least 50% infection and resulting in about a 5% loss in certain individual fields. Estimated loss for state was not over 5%. The disease occasionally penetrates the stalks resulting in a dry pithy rot. No syrup is produced in the dry pithy stalks.

Pineapple disease, caused by *Thielaviopsis paradoxa* De Seynes & Hohn., was reported from Porto Rico (much less common than usual).

Rind disease, caused by *Melanconium sacchari*, was reported from Louisiana (no loss).

Mottling, cause unknown, was reported from Porto Rico where it has spread practically to all parts of the Island, and continues to be epidemic in nature, occasioning heavy losses.

Leaf spot, caused by *Leptosphaeria sacchari* Van B. de H., was reported from Porto Rico (common).

Macrosporium sp. was reported from Georgia.

Sclerotium rolfsii was reported from Georgia.

Winter injury occurred in Arkansas 1917-1918 (most of the crop was frozen out).

Yellow stripe was reported from Porto Rico.

Red spot of sheath, caused by *Cercospora vaginae* Kruger, was reported

from Porto Rico (very common everywhere. Rayada or striped variety very susceptible).

Cladosporium sp. was found near Cairo, Georgia.

Fusarium sp. was found in Georgia.

Leaf spot, caused by Helminthosporium sacchari Butler, was reported from Porto Rico ("Very common in portions of the island. Causes losses during periods of dry weather especially. Certain varieties much more susceptible than others").

Helminthosporium sp. was reported from Georgia.

Root-knot, caused by Heterodera sp., was reported from Florida (caused material damage to crop in one locality).

SUGAR BEET

Leaf spot caused by Cercospora beticola Sacc.

Leaf spot was reported on sugar beets from Connecticut, Ohio, Michigan, Wisconsin, Minnesota, Kansas, Colorado and Utah, and it doubtless occurred to some extent at least in all of the other beet producing states. In general it did not cause any special damage, but in Colorado it brought about some loss. It is estimated that 10-20% of the crop was injured in that state and that about .2% loss was sustained. About Fort Collins it was epidemic, being the worst in five years.

Curly top (Cause undetermined).

Judging from reports received, curly top was very rare in 1918 and caused only a very little damage. It was reported from New Mexico, Nevada, Utah and Washington, and was said not to have been observed in Michigan, Kansas or Montana. Curly top has never been reported with certainty from any of the states east of the Missouri River and as a rule it does not seem to be particularly destructive over a period of more than one season in any given locality. The disease has been reported in the past to the Survey from the following states only: Nebraska, Kansas, Texas, New Mexico, Arizona, Colorado, Utah, Nevada, Idaho, Washington, Oregon and California.

Nematode caused by Heterodera schachtii.

Reports of the occurrence of this nematode were received only from Colorado in 1918, although it is known to have been present also in Utah and California.

In Colorado, Robbins says that the area of infestation appears now to be restricted to less than 80 acres of beets, and that a most rigid quarantine is being enforced by the field agents of the sugar beet companies. Great care is taken to prevent the spread of infested soil to new fields and rotation is practiced. The losses of a few individual growers have been large during the past year, but the losses to the sugar companies were light.

In 1917 a special search for this nematode was made in some of the western states, particularly in California. Suspicious reports were followed up in New Mexico and Arizona with negative results. The infested areas of

any size in California were definitely located and similar work was started in other states. The accompanying map, modeled after one prepared by D. G. Milbrath who did most of the survey work, shows the range of the nematode in 1917. It also represents the distribution of the pest in 1918, as no new reports were received.

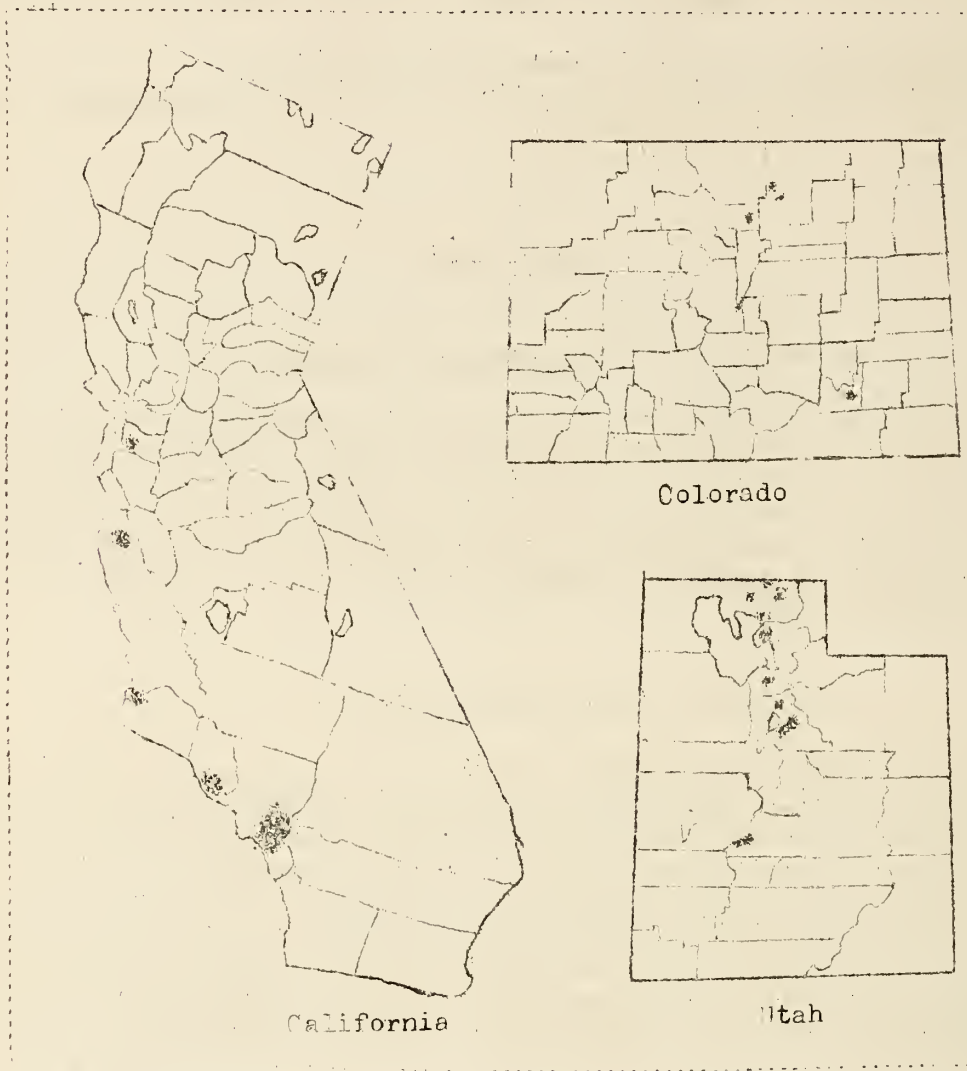


Figure 8. Geographical distribution of Heterodera schachtii as determined by D. G. Milbrath, 1917.

Regarding the occurrence of the nematode in California, Milbrath writes the following: "Heterodera schachtii is distributed generally in the counties of Orange, Ventura and Los Angeles, and is also found with considerable frequency in Monterey, Alameda, San Barbara and San Bernardino Counties. The new beet areas in Joaquin County appear free from infestation.

"The chief means by which the nematode is spread in California seem to be floods, cattle farm implements and men. The frequent floods of some of the rivers have been the means of carrying the nematodes to beet areas the entire length of their courses. The herds of cattle which are permitted to feed on beet tops after the roots are harvested are undoubtedly an important agent of distribution.

"Growers and sugar companies alike are aware of the existence and menacing nature of the sugar beet nematode."

The following table shows the losses as estimated by Milbrath for the six California counties that he surveyed.

Table XXV. Estimate of money loss from sugar beet nematode in California, 1917.

County	No. fields examined	No. acres examined	Percentage loss (range)	Loss per acre	Total loss
Monterey	59	4104	----	\$11.90	\$49,017
Alameda	10	891	0-15	5.60	5,033
Orange	65	10,211	4-20	7.66	79,269
Los Angeles	44	5637	0-10	3.00	16,545
San Joaquin	9	3355	0	0	0
Ventura	37	2006	2-30	4.90	9,925

Total acres of sugar beets in state 195,000.

Average loss per acre \$6.10

Estimated total loss of crop in state \$1,189,500

The Union Sugar Company reported the following concerning the California situation in 1917: "Disease serious in district south of Los Angeles and around Chino, Oxnard, Betteravia and Spreckels. The Oxnard, Chino and Los Angeles district had an increase of infested soil of probably 10-15%; the Betteravia district a decrease of 25-50% on company controlled areas; and Spreckels a slight increase. A two years rotation with beans is proving very successful in the region around Betteravia.

In Utah the disease was under observation in 1917 by E. G. Titus and J. W. Jones, both of the Sugar Plant Office.

Mr. Titus reported, "Serious in Lehi factory, Ogden, Salt Lake, Willard and Cache Valley districts. Disease has increased annually at the rate of 10-20%. It is not so common on very heavy soils and rather rare on alkaline land. Few farmers are employing any method of control. Alfalfa (3 years) sown with grain crops (never oats) in fall or spring followed by potatoes, corn, melons or onions 1-2 years, then beets, has been used to good advantage. The estimated average loss to the grower is \$300 and to the sugar companies in sugar at \$7.25 over \$1,000,000."

Mr. Jones reported the following: "Worst in Utah and Weber Counties, also bad in Salt Lake, Davis, Fox Elder and Cache Counties. It is most serious in the sandy loam soils. In Utah County on 1200 acres it is estimated there was a 30% loss. The sugar companies lost in about the same proportion as the growers. There are probably about 10,000 acres infested."

From Colorado, S. B. Nuckols wrote as follows on October 15, 1917, "The disease was present in Sterling, Brush and Fort Morgan areas, northern Colorado and Arkansas Valley. Only a small percent of the total acres planted were infested. This is the first year it has been seen in northern Colorado. So far the estimated annual loss to the grower and sugar companies is not known, but it is believed to be small."

Phoma rot and leaf spot caused by Phoma betae Frank.

Rotting of beets from Phoma was reported by collaborators from Ohio, Wisconsin, Montana and Colorado. In all cases the loss was said to be slight, causing less than 1% reduction in the crop. The fungus was also identified on beets sent into the Sugar Plant Office at Washington from the additional states of Michigan, Utah and Idaho.

Root rot caused by Rhizoctonia sp.

Reported to the Survey from Ohio, Michigan, Wisconsin, Colorado, Montana, Washington and California. In general it was of comparatively slight importance. A report of a large amount of seedling injury (damping off) in the Yakima Valley, Washington, was received by F. D. Heald and although he did not see specimens still he thinks it was probably due to Rhizoctonia.

Other diseases.

Scab, caused by Actinomyces scabies (Thaxter) Gussow, was reported from Connecticut on sugar beets near New Haven.

Sclerotium rolfsii was isolated at Washington from tips of infected tap roots of beets grown at Artesia, California.

Phyllosticta betae was found by Miss Rumbold to be causing a leaf spot on beets from Salt Lake County, Utah.

Fusarium spp. were isolated by Miss Rumbold from decaying beets sent in from Michigan, Utah, Idaho, California and Ontario.

Alternaria was collected on beet leaves at various points in Utah.

Dodder, caused by Cuscuta sp., was reported from New Mexico.

DISEASES OF FOREST TREES

JUNEERRY (Amelanchier sp.)

Black knot, caused by Flowrightia morbosa (Schw.) Sacc., was reported on A. canadensis from Minnesota.

Brown rot, caused by Sclerotinia cinerea (Bon.) Schrot., was reported from Ohio.

ARIOR VITAE (Thuja sp.)

Winter injury which had not been reported for several years from Maine was observed there during 1918. According to W. J. Morse it always appears there when winter injury occurs on the apples.

Elight (non parasitic) was reported from Washington.

ASH (*Fraxinus* sp.)

Rust, caused by Puccinia fraxinata (Lk.) Arthur, was reported from Connecticut, Ohio, Minnesota and Nebraska. In Connecticut it was less during 1918 than usual. In the other three states it was said to be scattered.

Leaf spot, caused by Cercospora fraxinites E. & E., was reported from Texas.

Leaf spot, caused by Phyllosticta viridis El. & Kel., occurred locally in Minnesota. Unimportant.

Canker, caused by Physalospora cydoniae Arnaud = (Sphaeropsis malorum Pk.), was reported as general on ash in Massachusetts during 1918.

Witches broom, caused by Exoascus cerasi (Fckl.) Sad., was reported from Ohio.

BIG TREE (*Sequoia Washingtoniana*)

Botrytis douglassi was reported from Ohio.

BIRCH (*Betula* sp.)

Canker, caused by Sphaeropsis conglobata, was reported from Ohio.

Galls, which were thought to have been caused by Dothidia sp., were found on branches near Bar Harbor, Maine.

FOX ELDER (*Acer negundo*)

Canker, caused by Nectria cinnabarina, was reported from Ohio.

Anthracnose, caused by Gloeosporium sp., was reported from Minnesota. It was local with only a trace of injury.

BUTTERNUT (*Juglans cinerea*).

Leaf spot, caused by Marssonina juglandis (Lit.) P. Mag., was reported from New York. Many trees were defoliated as the disease was general and rather severe.

Dead branches, supposedly caused by Melanconium oblongum, were reported found on butternut in Connecticut.

CAMPHOR TREE (*Cinnamomum camphora*)

Anthracnose, caused by Gloeosporium camperea, was reported from Texas. Unimportant.

Canker, caused by Diplodia sp., was reported from Texas. Restricted and unimportant.

CATALPA (*Catalpa* sp.)

Leaf spot, caused by Phyllosticta catalpae, was reported from New Jersey (Very abundant), Pennsylvania (local) and Ohio (scattered).

Root rot, caused by Ozonium omnivorum Shear, was present in Texas.

Heart rot, caused by Polystictus versicolor, was reported from Ohio.

Chlorosis of Japanese Catalpa, due to the richness of the soil in lime, caused some damage to the trees in Texas.

Sap rot, caused by Stereum versicolor, was present in Ohio.

Wilt of the leaves, caused by Sclerotinia sp., was reported from Ohio.

A wilt (cause undetermined) was reported from Ohio.

CHESTNUT (*Castanea* sp.)

Blight caused by Endothia parasitica (Murr.)

(Prepared by Roy G. Pierce, Office Forest Pathology, Mar. 19, 1919.)
Chestnut blight extends from Maine southwest through New York, Pennsylvania and West Virginia to Bedford County, Virginia. A general infection occurs in Massachusetts, New Hampshire, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, West Virginia and Virginia. Spot infections occur in Guilford County, North Carolina, on native timber; at Darlington, South Carolina, on planted stock; Lake County, Ohio, on nursery stock and native timber; in Cuyahoga County, Ohio; in Seneca and Livingston Counties, New York; and at Lewiston, Maine. The first infection in West Virginia west of the Alleghenies has been reported from Rowlesburg, Preston County, and at Morgantown, Monongalia County. The disease has spread by means of natural agents through the native chestnut forests from Maine to Virginia, but shipments of nursery stock have been responsible in the past for the spread of the blight to points in other states, viz:- in Agaassiz, British Columbia; Tehama County, California; Gage and Lancaster Counties, Nebraska; Page County, Iowa; Benton, Marion, Tippecanoe and Wells Counties, Indiana; Ingham County, Michigan; and Darlington County, South Carolina. In all but the last named state, the blight has been eradicated as far as known.

Chestnut blight has caused more damage to forest trees in America than any other known disease. Massachusetts reports 80% of the chestnut infected. New Jersey reports blight "abundant". Delaware, in 1917, reported percent of crop injured "almost total". It is estimated that there is approximately 100% infection in the vicinity of New York and Philadelphia. Proceeding westward in New York and Pennsylvania, the blight greatly decreases until it is absent in the western part of both states.

The loss occasioned by chestnut blight consists in the killing of large and small trees, making necessary immediate utilization of timber before decay and insect infestation has set in. This cutting of large tracts of chestnut timber has resulted in glutting the market. The loss to mature timber has not been so great as that to immature chestnut stands and to young sprout growth, which over large areas, has been practically total. Destruction of commercial chestnut orchards has resulted in loss of the nut crop. The destruction of chestnut lawn and street trees has resulted in an incalculable loss.

An estimate by Dr. Haven Metcalf in 1911 of a loss of \$25,000,000, caused by the blight up to that time, was considered by him in 1914 as being much too conservative. This loss to standing chestnut timber, chestnut reproduction and orchard and shade trees may today approximate \$50,000,000, if it does not exceed it.

No means have been discovered of effectively and cheaply preventing the infection of chestnut trees or of curing them after they are once infected. State quarantines on nursery stock may slow down the spread of the blight by preventing long distance jumps to uninfested regions. Already California and Illinois have such quarantines.

American chestnut is very susceptible. European chestnut and American chinquapin (*Castanea pumila*) are susceptible. Japanese chestnut is resistant. Robert T. Morris, of Stamford, Connecticut, reports Chinese chestnuts and northern Japanese and Korean varieties decidedly resistant. Lately in the vicinity of New York several groups of American chestnut have been found which are reported attacked by the disease but showing resistance to the blight.

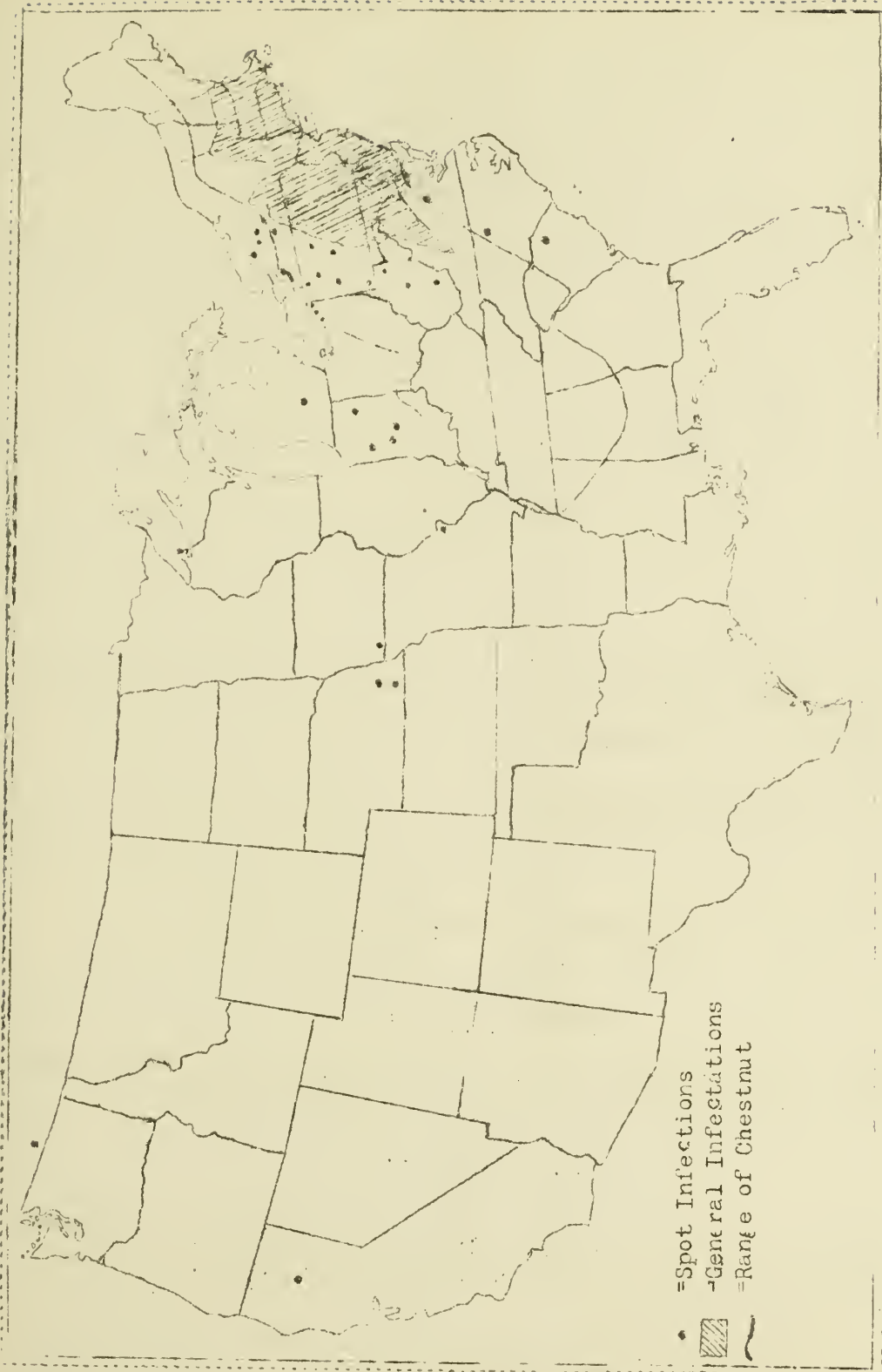


Fig. 10. Geographical Distribution of Chestnut Blight in Years Prior to 1910.

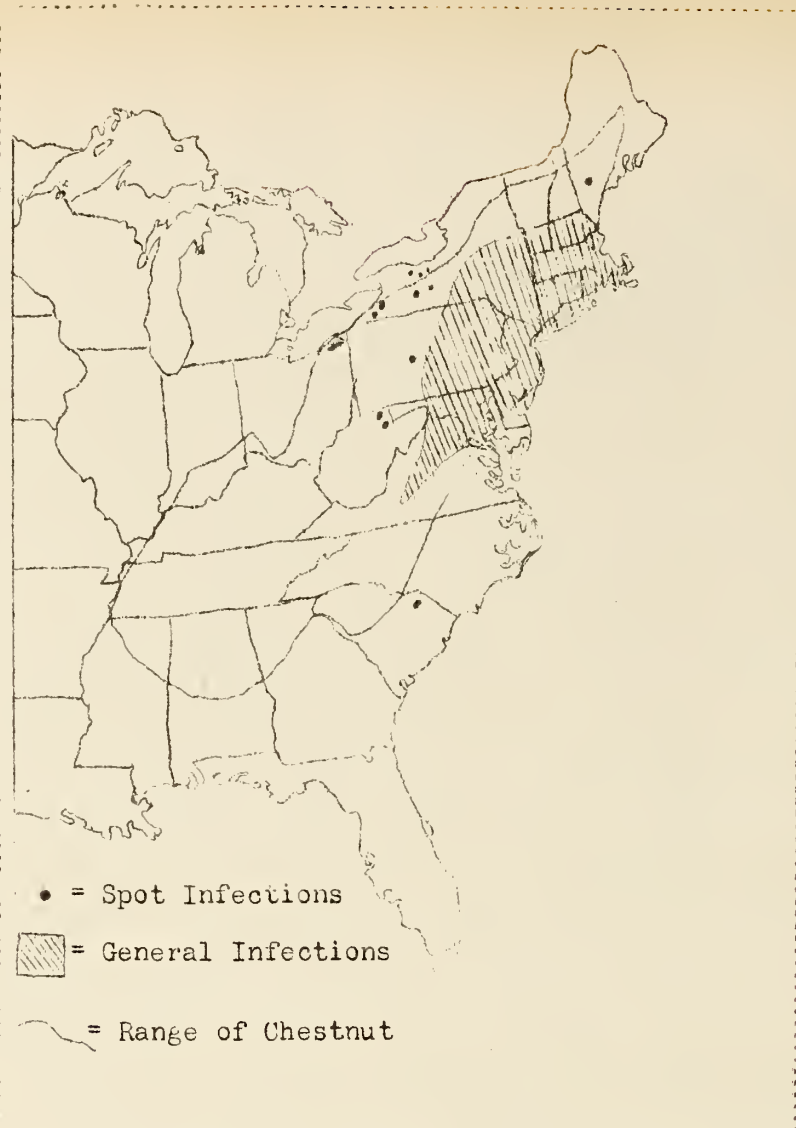


Fig. 9. Geographical distribution of chestnut blight in 1918.

ELDER (Sambucus)

Nectria, caused by Nectria sp., was common in Vermont on old plants. Rust, caused by Aecidium sambuci, was reported from Ohio.

EIM (Ulmus sp.)

Leaf spot, caused by Dothidella ulmea, was reported from Vermont, New York, and Ohio. It was very common in Vermont and rather common in New York. In Vermont the injury was about 50%, but due to lateness of appearance, little loss resulted.

Certain trees were noticed in New York to be very susceptible while immediately adjoining trees would be immune.

Multiple buds, caused by Fusarium sp., was reported from Ohio.

Branch canker, caused by Nectria cinnabarina (Tode) Fr., was reported from Ohio.

Root rot, caused by Ozonium omnivorum Shear, was common in Texas. Estimated loss about 1%.

Injury from frost was reported from Washington.

Winter injury was reported from New York.

Leaf scorch, due to weather conditions, was more frequent than usual in Connecticut.

HICKORY (*Hicoria* sp.)

Anthracoze, caused by Gloeosporium caryae, was reported from Ohio.

HORSE CHESTNUT (*Aesculus hippocastanum*)

Leaf blotch, caused by Guignardia aesculi (Peck) Stewart, was reported from Massachusetts, New York, New Jersey and Ohio.

Frost injury occurred in Washington.

JUNIPER (*Juniperus* sp.)

Winter injury was more than usually severe in Connecticut during the winter of 1917-1918.

LARCH (*Larix* sp.)

Valsa abietis was reported from Ohio.

LOCUST (*Robinia* sp.)

Blight, cause uncertain, was reported on black locust from Washington. Dodder (*Cuscuta* sp.) was reported from Washington.

MAGNOLIA (*Magnolia* sp.)

Lichen injury to the leaves was reported from South Carolina and Texas.

Root rot, caused by Oxonium omnivorum Shear, was common in Texas on the umbrella tree. Twenty per cent of trees affected locally.

MAPLE (*Acer* sp.)

Anthracoze, caused by Gloeosporium sp., was reported from Massachusetts, Ohio, Minnesota and Kansas. Moderate damage in Massachusetts. Only a trace in Minnesota.

Leaf spot, caused by Phyllosticta sp., was reported from New Jersey, West Virginia, Ohio and Minnesota.

Black specked leaf spot, caused by Rhytisma punctatum, was reported from West Virginia and Minnesota.

Tar leaf spot, caused by Rhytisma acerinum Fr., was reported from New York, New Jersey, West Virginia, Ohio and Minnesota.

Sun scald was commonly reported from Connecticut, New York, New Jersey, Pennsylvania and Ohio. In Pennsylvania the foliage on the south sides of the trees was scorched the worst.

Tip burn occurred in Pennsylvania at State College after about 48 hours of high wind with a temperature of about 87 to 90° F.

Frost injury was reported from Washington.

Leaf spot, cause unknown, was quite common in Vermont, 5 to 10% injury.

MOUNTAIN ASH (*Sorbus* sp.)

Canker, caused by Cytospora leucostroma, was reported by H. M. Jernison from Montana. It was found in considerable amounts on trees planted for ornamental purposes at Bozeman. Over 1% of the trees along the parking of a single street were destroyed by this disease.

Two cases of winter injury were reported from Whitman County, Washington.

MULBERRY (*Morus* sp.)

Bacterial blight, caused by Bacillus mori B. & L., was reported from New York and Texas.

Blight, cause unknown, was reported from Ohio.

Texas root rot, caused by Ozonium omnivorum Shear, was reported from Texas where it was common, with an estimated loss of about 4%.

OAK (*Quercus* sp.)

Twig blight, caused by Botryodiplodia ravenelli, was reported from Ohio.

Anthracnose, caused by Gnomonia veneta (Sacc. & Speg.) Kleb., was reported from Massachusetts, Ohio and Minnesota.

Nectria cinnabarina (Tode) Fr., was reported from Alabama.

PALM (*Palmae*)

Leaf spot of Corozo palm, caused by Cercospora acromiae Stevenson, was reported from Porto Rico.

Smut, caused by Graphiola phoenesis (Mong.) Poit., was reported from Texas.

PINE (*Pinus* sp.)

Blister rust caused by Cronartium ribicola, Fischer.

(Prepared by Roy G. Pierce, Office of Forest Pathology, March 19, 1919.)
In 1918 blister rust of white pine was found in all of the New England states, New York, New Jersey, Pennsylvania, Michigan, Wisconsin, Minnesota, Ontario and Quebec. The rust was general in New England; in New York, in the Adirondacks and east of the Hudson River as far south as Columbia County; in southern Ontario; in northwestern Wisconsin; and in Minnesota in the Valley of the St. Croix. It occurred on both pine and Ribes in all the above mentioned states and provinces except Pennsylvania and Michigan, and in these latter two only on pine.

In New York only limited scouting was carried on in 1918 outside the generally invaded area. Ribes infections were found in Franklin, St. Lawrence, Jefferson, Monroe, Niagara and Chautauqua County, with pine also infected in Monroe County. In the nurseries of the state, a large measure of control has been attained, for in 1918, the number of nurseries with rust was but two, as compared with eight in 1917, and sixteen in 1916. In the Geneva district, where there are large Ribes-growing nurseries and fruiting plantations, and where the disease has been present since 1906, no blister rust was found in 1918, indicating that the disease is beginning to be controlled.

One or more control demonstration areas have been established in Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut and New York where practical methods of control are being worked out for the benefit of pine owners.

In Connecticut the spraying of black currants gave almost complete control, but at such a high cost that it is not practical.

In New Jersey, the rust was reported from three counties: Camden on pines, Monmouth on pine and black currants, and Morris on pines. In former years the rust has been found in Bergen, Essex, Mercer and Passaic Counties. The number of yearly occurrences is being reduced by intensive inspection, removal of diseased Ribes leaves and quarantine of infested nurseries.

In Pennsylvania the disease was reported from Berks, Montgomery and Philadelphia Counties, all on white pine. In former years, it had been reported from Cambria, Chester, Huntingdon, Lancaster and Monroe Counties on pine.

In Michigan the rust was reported from Oakland County on pine.

In Wisconsin infections were found in ten counties: Barron, Burnette and Polk Counties on pine and Ribes; Clark, Dunn, Marathon, Pepin, Rusk, Shawano and Washburn Counties on Ribes.

In Minnesota infections were found in Chisago, Pine and Washington Counties on pine and Ribes, and in Olmstead and Ramsey on pine. In 1916 and 1917 blister rust was reported from Anoka, Hennepin, Isanti, Lyon, Kanabec and Steele Counties, and the infected pines and Ribes were removed. The non-appearance of the rust in 1918 in these six counties show that a beginning has been made in the control of this disease.

Prior to 1918 the blister rust had been reported from Virginia, Ohio, Indiana and South Dakota on planted white pines, and from Iowa on planted limber pine (Pinus flexilis). Destruction of the diseased lots in these states has resulted in the elimination of the rust as far as known.

Though the western half of the United States has been scouted for the blister rust for the past two seasons, especially in the western white pine and sugar pine districts, no sign of the disease has yet been discovered.

In 1918 the warm weather early in April caused the formation of aecial blisters on pine earlier than usual, as well as early formation of uredinia on Ribes. Notes from Minnesota give the following data:

Minnesota:

First Open Aecial Blisters: May 24, 1916.
May 8, 1917.
April 19, 1918.

First Uredinia: June 20, 1916.
June 12, 1917.
May 18, 1918.

First Telia: July 22, 1916.
June 12, 1917.
* July 8, 1918, at Grantsburg,
Wisconsin, across the St. Croix
River from Minnesota.

* This is the earliest date reported in 1918 for the Lake States, but telia were probably present in June.

While the damage that has at present been caused by this disease to native or planted white pine in this country is very small, considering the total value of the mature stand of these pines, yet the potential danger from this plant disease to the white pine reproduction and to the millions of young planted pine is very great, unless energetic measures be taken to

combat it. Infections on pine in limited areas have been as high as ninety-five percent. Many of the smaller trees have been killed outright, while larger trees have been killed in the tops or completely girdled.

The Federal Government, the New England States, New York, Pennsylvania, Wisconsin and Minnesota have made appropriations to study and combat this disease.

Other diseases.

Winter injury was reported from Maine and Connecticut.

Canker, caused by Cenangium abietis, was reported from Ohio.

Leaf scorch, cause unknown, was reported from New York. Varietal resistance was noticed in the white and Austrian pine.

Rust of Jack pine, caused by Cronartium cerebrum (Pk.) Hedge. & Long, was reported from Maine.

Rust of Scotch pine, caused by Cronartium comptoniae Arth., was reported from Ohio.

POPLAR (Populus sp.)

Canker, caused by Cytospora chrysosperma, was reported from Nebraska, Montana and New Mexico. In Montana large shade trees were seriously damaged as well as the young trees which were transplanted.

Frost injury was reported from Washington.

Canker, caused by Dothichiza populea, was reported from New Jersey (frequent).

Leaf spot, caused by Septoria populi, was reported from Minnesota (trace).

Anthracoise, caused by Marssonina sp., was reported from Connecticut, New Jersey and West Virginia (no so severe as usual).

Rust, caused by Melampsora sp., was reported from Nebraska.

SPRUCE (Picea sp.)

Rust, caused by Melampsoropsis ledicola (Peck.) Arth., was reported from Washington.

Rust, caused by Coleosporium solidiganis (Schw.) Thum., was reported from Minnesota.

SUMACH (Rhus sp.)

Canker, caused by Physolepora cydoniae Arn., was reported from Ohio.

SYCAMORE (Platanus occidentalis)

Anthracoise, caused by Gnomonia veneta, was reported from New Jersey (abundant), Texas, Oklahoma and Ohio.

TULIP TREE (Liriodendron tulipifera)

Mildew, cause not reported, was found in Ohio.

Tar spot, caused by Rhytisma lirodendri, was reported from Ohio.

Canker, caused by Verticillium sp., was reported from Ohio.

WALNUT, BLACK (Juglans nigra)

Anthracoise, caused by Marssonina juglandis, was very destructive to young second growth in West Virginia.

Bacterial blight, caused by Bacterium juglandis Pierce, was reported from Oregon. General over state.

WILLOW (Salix sp.)

Rust, caused by Melampsora saliciscoprae, was reported from Minnesota. Melampsora sp., was reported from Washington.

Tar spot, caused by Rhytisma solicinum, was reported from Ohio and Minnesota.

Leaf spot, caused by Septoria sp., was reported from Minnesota.

Leaf spot, caused by Pseudopeziza salicis, was reported from Minnesota.

Mildew, caused by Uncinula salicis, was reported from Ohio.

YEW (Taxus)

Winter injury was the cause of the death or injury of many trees in Connecticut.

DISEASES OF ORNAMENTAL PLANTS

AMPELOPSIS (Ampelopsis sp.)

Dieback, caused by Cladosporium sp., was reported from New Jersey where it was said to be less abundant than usual.

Leaf spot, caused by Guignardia bidwellii (E.) V. & R., was reported from New Jersey where it was abundant on lower leaves and a serious pest on the young plants.

ARROW HEAD (Sagittaria)

Leaf spot, caused by Cercospora sagittariae, was reported from Texas.

ASTER (Aster sp.)

Orange rust, caused by Coleosporium solidaginis (Schw.) Thum., was very common in Vermont in 1918, appearing about October 10. Weather conditions were favorable for its growth.

Fusarium wilt, caused by Fusarium sp., was reported from Urbana, Illinois, where 60% of the plants in one bed and 20% in another bed had died. One doubtful case was reported from Maine.

BARBERRY (Berberis sp.)

Bacterial spot was reported from Nebraska on B. vulgaris.

Blight, caused by Verticillium sp., was reported from Ohio on Japanese barberry.

BEGONIA (Begonia sp.)

A bacterial disease of the begonia was reported from Ohio.

BOX (Buxus sp.)

Winter injury was quite general in Connecticut during 1918.

CANNA (*Canna* sp.)

Rust, caused by Puccinia cannae, was reported from San Domingo. It destroys the leaves.

CARNATION (*Dianthus caryophyllus*)

Rust, caused by Uromyces caryophyllinus (Sch.) Wint., was reported from New Jersey, Ohio, Oklahoma, Oregon and Washington.

Wilt, caused by Fusarium sp., was reported from Pennsylvania and Ohio. Careless methods in propagation and soil treatment are responsible for the loss to a large extent in Pennsylvania.

Root rot, caused by Corticium vagum B. & C., was common in New Jersey during 1918.

Root knot, caused by Heterodera radiculicola (Greef.) Muller, was present in slight amounts in Texas.

Stem rot, caused by Potrytis sp., was found in Ohio.

CENTURY PLANT (*Agava americana*)

Blight, caused by Stagonospora gigantea, was common in Texas. Unimportant.

CHRYSANTHEMUM (*Chrysanthemum hortorum*)

Powdery mildew was reported from Ohio.

Leaf spot, caused by Septoria chrysanthemi, was reported from Oklahoma. It occurred locally in Payne County.

COCLEBUR (*Xanthium* sp.)

Texas root rot, caused by Ozonium omnivorum Shear, was common in Texas on this host as well as on many others.

Rust, caused by Puccinia xanthi, was reported from Texas.

CYCLAMEN (*Cyclamen* sp.)

Root knot, caused by Heterodera radiculicola (Greef.) Muller, was found in Nebraska. The nematode seriously damaged cyclamens in an Omaha greenhouse.

DANDELION (*Taraxacum*)

Fasciation, cause unknown, was reported from Washington.

DAHLIA (*Dahlia* sp.)

Powdery mildew, caused by Erysiphe cichoracearum D. C., was common in West Virginia.

DRACENEA (*Dracaena* sp.)

Leaf spot, caused by Phyllosticta maculicola Hals., was common in Porto Rico.

ENONYMUS (*Enonymus* sp.)

Crown gall, caused by Bacterium tumefaciens Sm. & Town., was reported

from Connecticut.

Leaf spot, caused by Exosporium concentricum, was common in Texas.

Root rot, caused by Ozonium omnivorum, was reported from Texas.

FEVERFEW (Chrysanthemum parthenium)

Rhizoctonia, caused by Rhizoctonia sp., was reported from Washington.

FLOWERING CRAB (Pyrus pulcherrima)

Rust, caused by Gymnosporangium juniperi-virginianae, appeared locally in Kansas.

GERANIUM (Geranium sp.)

Bacteriosis, caused by Bacterium erodii, was reported from Ohio and Washington.

Rhizoctonia, caused by Rhizoctonia sp., was reported from Washington.

GLADIOLUS (Gladiolus sp.)

Hard rot, caused by Septoria gladioli, was general in New York. The crop injury ranged from 20-50%. No varietal resistance was noted. Planting of selected healthy corms in clean soil is successful.

GOLDEN GLOW (Rudbeckia lacinata)

Powdery mildew, caused by Erysiphe cichoracearum D. C., was present in West Virginia in small amounts.

GOLDEN ROD (Solidago sp.)

Orange rust, caused by Coleosporium solidaginis, was very abundant in Vermont.

HOLLYHOCK (Althea rosea)

Rust, caused by Puccinia malvacearum Mont., was reported from Maine, Vermont, Massachusetts, New York, New Jersey, West Virginia, Ohio, Washington and Oregon. The disease seemed to be general in all the states reporting.

Leaf blight, caused by Cercospora althaeina, was reported from Connecticut.

Anthracoise, caused by Cercospora malvarum, was reported from Ohio.

Leaf spot, caused by Phyllosticta althaeina, was reported from Ohio.

Root rot, caused by Ozonium omnivorum Shear, was reported from Texas, where it was prevalent in nurseries.

HYDRANGEA (Hydrangea sp.)

Leaf spot, caused by Septoria hydrangea, was reported from Ohio.

IRIS (Iris sp.)

Leaf spot, caused by Scolecotrichum iridis F. & R., was reported from Minnesota.

Leaf spot, caused by Heterosporium gracile (Wal.) Sacc., was reported from Ohio and Washington.

Soft rot, caused by Bacillus carotovorus, was reported from Minnesota. It was more general than usual, the injury running as high as 75%, average about 5%.

IVY - BOSTON - (Psêdera tricuspidata)

Leaf spot, caused by Phyllosticta ampeloidis E. & M., was very destructive locally in West Virginia.

KERRIA JAPONICA

Twig and leaf disease, caused by Coccomyces kerriae Stew., was reported from Kentucky. It was very prevalent in a nursery at Louisville where it killed all the yellow kerrias.

LARKSPUR (Delphinium sp.)

Bacterial spot, caused by Bacillus delphini, was reported from Connecticut. Not common.

Root rot, thought to have been caused by Rhizoctonia sp., was reported from New York. Nearly all the plants of one grower were injured.

LAUREL (Kalmia sp.)

Winter injury in Connecticut was severe during 1917-1918.

LILAC (Syringa vulgaris)

Mildew, caused by Microsphaera alni (Wal.) Salm., was reported from Vermont, New York, New Jersey, West Virginia and Ohio.

Leaf spot, caused by Phyllosticta halstedii E. & E., was present in New Jersey.

Injury from drought was reported from Washington.

MALLOW (Malva sp.)

Rust, caused by Puccinia malvacearum, was very common in Vermont.

MIGNONETTE (Reseda odorata)

Root rot, probably caused by Fusarium sp., was reported twice from greenhouses near New York City. The injury was large in both cases.

PEONY (Paeonia sp.)

Leaf blight, caused by Botrytis sp., was reported from New York, Ohio and Minnesota.

Root and stem rot, caused presumably by a Fusarium sp., was reported from Missouri. Has occurred in a nursery for past three years, being quite injurious.

Leaf blotch, caused by Cladosporium paeoniae, was reported from Minnesota.

Stem rot, caused by Sclerotinia libertiana, was reported from Minnesota. Mosaic was reported affecting the peony in Ohio.

PHLOX (Phlox sp.)

Powdery mildew, caused by Erysiphe cichracearum, was reported from

Connecticut, New Jersey and Ohio.

PIGWEEED (Amaranthus retroflexus)

White rust, caused by Albugo bliti (Bw.) Kze., was reported from Nebraska.

PRIVET (Ligustrum sp.)

Root rot, caused by Ozonium omnivorum Shear, was reported from Texas.

Anthracnose, caused by Gloeosporium cingulatum Atk., was reported from Texas and Ohio.

Leaf spot, caused by Exosporium concentricum, was reported from Texas.

Winter injury occurred in Connecticut and Ohio. In Connecticut it was general throughout the state, killing or injuring many plants.

ROSE (Rosa sp.)

Mildew, caused by Sphaerotheca pannosa (Wallr.) Lev., was reported from Massachusetts, New York, New Jersey, West Virginia, Mississippi, Louisiana, Porto Rico, Oklahoma, Texas, Arkansas, Ohio, Minnesota, Missouri, Washington and Oregon. The rambler varieties, especially the crimson ramblers, were said to be most susceptible in Massachusetts, New York and Oklahoma. Sulphur-lead dusting gave good results in New York.

Black spot, caused by Diplocarpon rosae Wolf = Actinonema rosae (Lib.) Fr., was reported as common in New York, New Jersey, West Virginia, Louisiana, Texas, Arkansas, Ohio, Minnesota, Missouri, Washington and Oregon.

Crown gall, caused by Bacterium tumefaciens Sm. & Town., was reported from New Jersey and Ohio.

Anthracnose, caused by Gloeosporium rosae, was reported from New Jersey and Ohio.

Rust, caused by Phragmidium sp., was reported from Maine, New York, Arkansas, Minnesota and Nebraska.

Root rot, caused by Ozonium omnivorum Shear, was reported from Texas. It was common. The loss estimated about 20%.

Cane blight, caused by Leptosphaeria coniothyrium (Fckl.) Sacc., was reported from New Jersey and Ohio.

Bud rot, caused by Botrytis cinerea, was reported from Ohio.

Leaf spot, caused by Phyllosticta rosicola, was reported from New Jersey.

Leaf spot, caused by Septoria rosae Desm., was reported from Porto Rico.

Leaf spot, caused by Cercospora rosicola, was reported from Porto Rico and Santo Domingo.

Rhizoctonia was reported affecting roses in Texas.

Gall, cause undetermined, was reported from Porto Rico.

Winter injury, due to the low temperature (22° with high wind), was common in New York. Many varieties were killed, even those that were usually hardy. The ramblers were especially badly hurt.

Chlorosis was reported from Nebraska.

SALVIA (Salvia sp.)

Cladosporium aphidis was reported from Ohio.

SNAPDRAGON (Antirrhinum majus)

Rust, caused by Puccinia antirrhinum, was reported from Massachusetts, Ohio, Minnesota, Nebraska, Washington and Oregon.

Root knot, caused by Heterodera radicumicola (Greef.) Muller, was reported from Nebraska. It destroyed all the plants in an Omaha greenhouse.

SPIRAEA (Spiraea sp.)

Root rot, caused by Ozonium omnivorum Shear, was reported from Texas.

SUNFLOWER (Helianthus annuus)

Rust, caused by Puccinia helianthi, was reported from Vermont, West Virginia and Nebraska.

Powdery mildew, cause not given, was reported from Oregon.

SWEET PEA (Lathyrus odoratus)

Powdery mildew, caused by Erysiphe polygoni D. C., was reported from Washington.

Wilt, caused by Fusarium sp., was reported from New York and Connecticut.

TAMARIX (Tamarix sp.)

Root rot, caused by Ozonium omnivorum Shear, was reported from Texas.

TULIP (Tulipa sp.)

White rot, caused by Sclerotinia fuckeliana, was reported from Ohio.

VERBENA (Verbena sp.)

Powdery mildew, caused by Erysiphe cichoracearum D. C., was reported from Texas.

VETCH (Vicia sp.)

Leaf spot, caused by Ascochyta viciae Lib., was reported from Connecticut.

Rust, caused by Uromyces pisi (Pers.) de B., was reported from Vermont.

YUCCA (Yucca sp.)

Leaf spot, caused by an undetermined fungus, was reported from Washington.

VIOLET (Viola sp.)

Rust, caused by Puccinia violae (Soph.) Kleb., was reported from Minnesota.

ZINNIA (Zinnia sp.)

Powdery mildew, caused by Erysiphe cichoracearum D. C., was reported from West Virginia.

Leaf spot, caused by Cercospora tricincta H. & W., was reported from Porto Rico.

DISEASES OF MISCELLANEOUS PLANTSBROOM CORN (*Panicum* sp.)

Stagonospora curvula was reported from Nebraska.

BUCKTHORN (*Rhamus* sp.)

The aecial stage of crown rust of oats (Puccinia coronata) was said to be common on this host in Vermont and Minnesota.

CASSAVA (*Manihot* sp.)

Leaf spot, caused by Cercospora henningsii Allesch, was reported by Stevenson from Porto Rico and Santo Domingo. In Porto Rico it was common but the damage was negligible. In Santo Domingo it was the only disease present and of no economic importance.

CHAYOTE (*Sechium edule*)

Leaf spot, caused by Cercospora sachii Stev., was reported from Porto Rico. It was very common and serious.

CACAO (*Theobroma cacao*)

Wood rot, due to careless pruning, was very prevalent in Santo Domingo according to Stevenson.

Die-back was one of the most serious troubles noted on Santo Domingo plantations. This seemed to be due to close planting and poor cultural conditions rather than to any specific fungus.

COCOANUT (*Cocos* sp.)

Bud rot, caused by Bacillus coli, was reported from Santo Domingo. It was very destructive, destroying whole groves. As yet it has not reached Porto Rico in a virulent form. In Cuba the groves have been devastated, causing a loss of millions of trees.

COFFEE (*Coffea arabica*)

Leaf spot, caused by Cercospora coffeicola, was reported from Santo Domingo.

CROTON (Oil Plant)

Rust, caused by Eubakia crotonis, was reported as common in Texas. Injury unimportant.

DATE (*Phoenix dactylifera*)

Leaf spot, caused by Exosporium palmivorum Sacc., was prevalent in Texas on greenhouse plants.

Leaf smut, caused by Graphiola phoenicis (Morig.) Poit., was reported from Porto Rico and Santo Domingo.

GINSENG (*Panax quinquefolium*)

Leaf spot (cause undetermined) was reported from Washington.

HOP (*Humulus lupulus*)

Mildew, caused by Sphaerotheca humuli, was present in New York wherever hops were grown. About 100% of the crop was affected. Dusting with sulphur gave excellent results as usual.

Winter injury, caused by low temperatures, produced in New York severe losses in hop fields of Schcharie County.

MUSTARD - CHINESE (*Brassica* sp.)

Leaf spot, caused by Cercospora bloxani Berk. and Br., was reported Porto Rico.

PAPAYA (*Carica papaya*)

Leaf spot, caused by Pucciniopsis caricae Earle, was common in Porto Rico.

RHUBARB (*Rheum* sp.)

Root rot, probably bacterial, was found in Missouri.

Anthracnose, caused by Colletotrichum sp., was reported from Pennsylvania.

Rhizoctonia, caused by Rhizoctonia sp., was reported from Washington.

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