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THE PLANT DISEASE REPORTER

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Supplement 130

SUMMARY OF THE RECORDED DATA ON THE REACTION OF WILD AND
CULTIVATED GRASSES TO STEM RUST (*PUCCINIA GRAMINIS*),
LEAF RUST (*P. RUBIGOVERA*), STRIPE RUST (*P. GLUMARUM*),
AND CROWN RUST (*P. CORONATA*) IN THE
UNITED STATES AND CANADA

June 15, 1941



The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

SUMMARY OF THE RECORDED DATA ON THE REACTION OF WILD AND CULTIVATED GRASSES TO STEM RUST (*PUCCINIA GRAMINIS*), LEAF RUST (*P. RUBIGO-VERA*), STRIPE RUST (*P. GLUMARUM*), AND CROWN RUST (*P. CORONATA*) IN THE UNITED STATES AND CANADA^{1/}

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During the past several decades many botanists and plant pathologists have published data pertaining to the reaction of wild and cultivated grasses, both native and introduced, to the four most common and important graminicolous rusts in the United States and Canada, namely: stem rust (*Puccinia graminis* Pers.), leaf rust (*P. rubigo-vera* (D.C.) Wint.), stripe rust (*P. glumarum* (Schm.) Erikss. and Henn.), and crown rust (*P. coronata* Cda.). Only a few of the studies involved dealt with the grasses primarily; in most works the grasses have figured more or less incidentally, in recognition of their importance in the spread and overwintering of the same rusts that attack cereals.

In recent years there has been more interest in the grasses themselves, with the objective of improvement through coordinated work in breeding, selection, and disease control studies. In this connection it has seemed desirable to attempt to assemble and tabulate the vast amount of data, much of it unpublished or buried in seemingly endless publications, so as to make this information more easily available to those interested, directly or indirectly, in grass improvement and culture.

The data thus assembled have been summarized in tables 1 and 2, while the source material from which most of the tabulated information was obtained is listed in the attached bibliography. A summary of the records pertaining to known reactions of 350 species of native and introduced grasses in the United States and Canada to the four rusts mentioned in the introductory paragraph is given in table 1. In table 2 are presented the results recorded in literature or otherwise for the six varieties of stem rust commonly found in North America, viz.: *P. graminis agrostidis*, *P. graminis avenae*, *P. graminis phleipratensis*, *P. graminis poae*, *P. graminis secalis*, and *P. graminis tritici*. It is not practicable in this summary to give the literature citation for each record. Instead, as already stated, a bibliography is appended, showing the sources of the published data included in the tables.

^{1/} Joint contribution of the Divisions of Cereal and Forage Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, in cooperation with the State Agricultural Experiment Stations, University of Minnesota and State College of Washington. Grateful acknowledgment is made to Dr. E. C. Stakman, Chief of the Division of Plant Pathology and Botany, University of Minnesota, for many helpful suggestions and constructive criticism. Assistance in the preparation of the typed material was furnished by the personnel of the Work Projects Administration, Official Project No. 165-1-71-124, Sub-project No. 491, sponsored by the University of Minnesota, 1941.

No claim is made that the present summary contains all the pertinent published data in the United States and Canada, although at least a reasonable approach toward completeness has been made. Many unpublished data of the writers have been included, as well as those contributed by others. Unpublished data have been contributed by Dr. Margaret Newton and Dr. Thorvaldur Johnson, Dominion Rust Research Laboratory, Winnipeg, Manitoba; Dr. Roderick Sprague, Division of Cereal Crops and Diseases, Bureau of Plant Industry, Northern Great Plains Field Station, Mandan, North Dakota; Dr. C. L. Lefebvre, Division of Forage Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.; and Mr. Carl Claassen, Washington Agricultural Experiment Station, Pullman, Washington, for which grateful acknowledgment is hereby made.

The symbols used in the tables to denote rust reactions are as follows:

- N = Susceptible, as established by natural rusting under field conditions;
- A = Susceptible, as indicated by artificial inoculation experiments;
- R = Resistant, as demonstrated by inoculation experiments;
- F = Failure to become infected as a result of artificial inoculation experiments. The latter ordinarily indicates immunity, but the possibility must always be considered that the inoculated plants may somehow have escaped infection.

Table 1. - Summary of recorded reactions of wild and cultivated grasses to four species of rusts
(Puccinia graminis, P. rubigo-vera, P. glumarum, and P. coronata) in the United States and
Canada.

Affected grass species ^{a/}	Reaction to rust species:				
	<u>P. graminis</u>	<u>P. rubigo-vera</u>	<u>P. glumarum</u>	<u>P. coronata</u>	
<u>Aegilops crassa</u> Boiss.	-	A	-	-	-
<u>A. cylindrica</u> Host	N	A R F	N	-	-
<u>A. cvata</u> L.	-	N A R	-	-	-
<u>A. squarrosa</u> L.	-	R F	-	-	-
<u>A. triuncialis</u> L.	-	A R F	-	-	-
<u>Agropyron albicans</u> Scribn. & Smith:					
<u>A. acutum.</u> (DC.) Roem. & Schult. ...	-	-	-	-	-
<u>A. caninum</u> (L.) Beauv.	-	R F	N	-	R F
<u>A. ciliare</u> (Trin.) Franch.	-	-	N	-	-
<u>A. cristatum</u> (L.) Gaertn.	N A R F	- F	N A R	-	R F
<u>A. dagnae</u> Grossh.	-	-	N	-	-
<u>A. dasystachyum</u> (Hook.) Scribn.	N A R F	N A	N A	-	R F
<u>A. desertorum</u> (Fisch.) Schult.	-	- F	N A	-	R F
<u>A. elmeri</u> Scribn.	-	R F	-	-	-
<u>A. elongatum</u> (Host) Beauv.	A	-	-	-	R F
<u>A. griffithsi</u> Scribn. & Smith	N	-	N A	-	-
<u>A. imbricatum</u> (Stev.) Roem. & Schult.	N	R F	-	-	R
<u>A. inermis</u> (Scribn. & Smith) Rydb. ...	N A R F	- F	N	-	F
<u>A. intermedium</u> (Host) Beauv.	N	- F	N A	-	R F
<u>A. obtusiusculum</u> Lange	-	-	N	-	-
<u>A. orientale</u> (L.) Roem. & Schult. ...	-	-	N	-	-
<u>A. pauciflorum</u> (Schwein.) Hitchc. ...	N A R F	N A R F	N A R F	N	R F
<u>A. pseudorepens</u> Scribn. & Smith ...	N	R F	-	-	F
<u>A. pungens</u> (Pers.) Roem. & Schult. ...	-	-	N	-	-
<u>A. repens</u> (L.) Beauv.	N A R F	- F	N A	-	R F
<u>A. riparium</u> Scribn. & Smith	-	-	N	-	-
<u>A. saxicola</u> (Scribn. & Smith) ...	-	-	-	-	-
<u>Piper</u>	A	-	N	-	-

^{a/} Insofar as possible; A. S. Hitchcock's "Manual of the Grasses of the United States" (U. S. Dept. Agr. Misc. Publ. No. 200, 1935) is being followed.

Affected. grass species	Reaction to rust species:					
	P. graminis	P. rubigo-vera	P. glumarum	P. coronata		
A. semicostatum (Steud.) Nees	N	-	-	-	-	-
A. sibiricum (Willd.) Beauv.	N	-	-	-	-	-
A. smithii Rydb.	N	A	-	-	N	R
A. spicatum (Pursh) Scribn. & Smith	N	A	-	-	-	R
A. strigatum (Steud.) Nees ex Hookf.	N	-	-	-	-	-
A. strigosum (Bieb.) Boiss.	N	-	-	-	-	-
A. subsecundum (Link) Hitchc.	N	A	R	F	-	R
Agropyron trichophorum (Link) Richt.	N	-	-	-	-	-
A. triticeum Gaertn.	N	-	-	-	-	-
A. uganicum Drobov	-	-	-	N	-	-
A. villosum (L.) Link	-	-	-	-	-	-
Agrostis aequalis (Trin.) Trin.	-	-	-	-	-	-
A. alba L.	N	A	R	F	-	F
A. canina L.	N	A	-	-	-	F
A. castellana Boiss. & Reut.	-	-	-	-	-	-
A. diegoensis Vasey	N	-	-	-	-	-
A. exarata Trin.	N	A	-	-	-	F
A. gigantea Roth	N	-	-	-	-	-
A. hiemalis (Walt.) B. S. P.	N	A	R	F	-	-
A. longiligula Hitchc.	-	-	-	-	-	-
A. oregonensis Vasey	N	-	-	-	-	-
A. palustris Huds.	N	-	R	F	-	F
A. perennans (Walt.) Tuckerm.	N	-	-	-	-	-
A. retrofracta Willd.	-	-	-	-	-	-
A. scabriglumis Boiss. & Reut.	-	-	-	-	-	-
A. spica-venti L.	N	A	-	-	-	-
A. stolonifera L.	N	A	R	F	-	F
A. tenuis Sibth.	N	-	R	F	-	-
A. thurberiana Hitchc.	-	-	-	-	-	F
A. verticillata Vill.	-	-	-	-	-	-
Alopecurus aequalis Sobol.	N	-	-	-	-	R
A. geniculatus L.	N	A	-	-	-	A

Affected grass species	Reaction to rust species:			
	P. graminis	P. rubigo-vera	P. glumarum	P. coronata
<i>A. howellii</i> Vasey	N	-	-	-
<i>A. myosuroides</i> Huds.	-	-	-	-
<i>A. pratensis</i> L.	N A R F	-	-	N A R F
<i>A. saccatus</i> Vasey	N	-	-	-
<i>Ammophila arenaria</i> (L.) Link	-	-	-	N - R F
<i>Andropogon furcatus</i> Muhl.	-	-	-	- F
<i>A. scoparius</i> Michx.	-	-	-	- F
<i>Anthoxanthum aristatum</i> Boiss.	N	-	-	- R F
<i>A. odoratum</i> L.	N	-	-	- A R F
<i>Arctagrostis latifolia</i> (R.Br.) Griseb.	-	-	-	- A
<i>Arrhenatherum elatius</i> (L.) Mert. & Koch	N A R F	-	-	N - R F
<i>Apundo donax</i> L.	-	-	-	N - -
<i>Avena abyssinica</i> Hochst.	-	-	-	- A -
<i>A. barbata</i> Brot.	N	-	-	N A R -
<i>A. brevis</i> Roth	-	-	-	- A R -
<i>A. byzantina</i> K. Koch	N	-	-	N - -
<i>A. diffusa</i> (Neibr.) Aschers & Graebn.	-	-	-	- A -
<i>A. fatua</i> L.	N A	-	-	N A R -
<i>A. hookeri</i> Scribn.	-	-	-	- F -
<i>A. nuda</i> L.	N	-	-	- A R F
<i>A. pubescens</i> Huds.	N	-	-	- - -
<i>A. sterilis</i> L.	-	-	-	N A -
<i>A. strigosa</i> Schreb.	-	-	-	- A -

Affected grass species	Reaction to rust species:									
	P. graminis	P. rubigo-vera	P. glumarum	P. coronata						
Beckmannia erucaeformis (L.) Host .:	N	-	-	-	F	:	N	A	R	F
B. syzigachne (Steud.) Fernald:	N	-	-	-	-	:	-	-	-	-
Bouteloua curtipendula (Michx.) :	:	:	:	:	:	:	:	:	:	:
Torr.:	N	-	-	-	-	:	-	-	-	F
B. gracilis (H. B. K.) Lag.:	N	-	-	-	-	:	-	-	-	F
Brachypodium distachyum L.:	-	-	-	-	-	:	-	-	-	F
Briza maxima L.:	N	-	-	-	-	:	-	-	-	R
B. media L.:	N	-	-	-	-	:	-	-	-	-
B. minor L.:	N	-	-	-	-	:	-	-	-	-
Bröseropyrum siculum Link	•	•	•	•	•	:	-	-	-	-
Bromus adoensis Höchst.:	•	•	•	•	•	:	-	-	-	-
B. anomalus Rupr.:	N	•	•	•	•	:	N	A	R	F
B. arvensis L.:	-	-	-	-	-	:	-	-	-	F
B. brachystachys Hornung	•	•	•	•	•	:	-	-	-	-
B. breviaristatus Buckl.:	-	-	-	-	-	:	-	-	-	-
B. brevis Steud.:	-	-	-	-	-	:	-	-	-	-
B. brizaeformis Fisch. & Mey.:	-	-	-	-	-	:	-	-	-	-
B. carinatus Hook. & Arn.:	N	-	-	-	-	:	N	A	R	F
B. catharticus Vahl.:	-	-	-	-	-	:	N	A	R	F
B. ciliatus L.:	N	A	R	-	-	:	N	A	R	F
B. commutatus Schrad.:	-	-	-	-	-	:	-	-	-	-
B. erectus Huds.:	-	-	-	-	-	:	-	-	-	-
B. frondosus (Shear) W & S.:	-	-	-	-	-	:	-	-	-	-
B. grandis (Shear) Hitchc.:	-	-	-	-	-	:	-	-	-	-
B. hordeaceus L.:	-	-	-	-	-	:	-	-	-	-
B. inermis Leyss.:	-	-	-	-	-	:	-	-	-	-
B. japonicus Thunb.:	N	-	-	-	-	:	-	-	-	-
B. kalmii A. Gray	-	-	-	-	-	:	-	-	-	-
B. lanuginosus Poir.:	-	-	-	-	-	:	-	-	-	-

Affected grass species	Reaction to rust species:				
	P. graminis	P. rubigo-vera	P. glumarum	P. coronata	
<i>Bromus latiglumis</i> (Shear) Hitchc. :	-	R F	:	N A	R -
<i>B. macrostachys</i> Desf.:	-	R F	:	-	A -
<i>B. madritensis</i> L.:	-	R F	:	-	A -
<i>B. mollis</i> L.:	N	R F	:	N A	R -
<i>B. orcuttianus</i> Vasey:	N	-	:	-	-
<i>B. pacificus</i> Shear:	-	-	:	N	-
<i>B. pumpellianus</i> Scribn.:	N	R -	:	N A	R F
<i>B. purgans</i> L.:	N	R F	:	N A	R F
<i>B. racemosus</i> L.:	-	-	:	N	-
<i>B. rigidus</i> Roth.:	N	R F	:	-	A R
<i>B. rubens</i> L.:	-	A R F	:	-	-
<i>B. scoparius</i> L.:	-	-	:	-	-
<i>B. secalinus</i> L.:	N	-	:	N A	-
<i>B. sitchensis</i> Trin.:	N	-	:	N A	R -
<i>B. squarrosus</i> L.:	N	R F	:	-	-
<i>B. sterilis</i> L.:	N A	R -	:	N A	R F
<i>B. suksdorfii</i> Vasey:	N	-	:	N	-
<i>B. tectorum</i> L.:	N A	R F	:	N A	-
<i>B. tomentellus</i> Boiss.:	-	-	:	-	-
<i>B. vulgaris</i> (Hook.) Shear:	-	-	:	N	-
<i>Buchloë dactyloides</i> (Nutt.) Engelm.:	N	-	:	-	-
<i>Calamagrostis canadensis</i> (Michx.) Beauv.:	N A	R F	:	-	-
<i>C. inexpansa</i> A. Gray:	N	-	:	-	-
<i>C. koelerioides</i> Vasey:	-	-	:	-	-
<i>C. montanensis</i> Scribn.:	-	-	:	-	-
<i>C. nutkaensis</i> (Presl) Steud.:	-	-	:	-	-
<i>C. neglecta</i> (Ehrn.) Gaertn.:	-	-	:	-	-
<i>C. purpurascens</i> R. Br.:	-	-	:	-	-
<i>C. rubescens</i> Buckl.:	-	-	:	-	-
<i>C. scopulorum</i> Jones:	-	-	:	-	-

affected grass species	Reaction to rust species:				
	P. graminis	P. rubigo-vera	P. glumarum	P. coronata	
<i>Calamovilfa longifolia</i> (Hook.) Scribn.	N - - -	- - - -	- - - -	- - - -	- A - F
<i>Catabrosa aquatica</i> (L.) Beauv.	N - - -	- - - -	- - - -	- - - -	- - - -
<i>Chloris gayana</i> Kunth	- - - -	- - - -	- - - -	- - - -	- - - F
<i>C. verticillata</i> Nutt.	- - - -	- - - -	N - - -	- - - -	- - - -
<i>Cinna arundinacea</i> L.	N - - -	N - - -	- - - -	- - - -	N - - -
<i>C. latifolia</i> (Trevir.) Griseb.	N - - -	N - - -	- - - -	- - - -	N A - F
<i>Corynephorus canescens</i> (L.) Beauv. :	N - - -	- - - -	- - - -	- - - -	- - - -
<i>Cynodon dactylon</i> (L.) Pers.	N - - F	- - - -	- - - -	- - - -	- - - F
<i>Cynosurus cristatus</i> L.	- - - F	- - - -	- - - -	- - - -	- - R F
<i>Dactylis glomerata</i> L.	N A R F	- - - F	- - - F	- - - F	- A R F
<i>Dactyloctenium aegyptium</i> (L.) Richt.	- - - F	- - - -	- - - -	- - - -	- - - F
<i>Danthonia intermedia</i> Vasey	- - - -	- - - -	- - - -	- - - -	- - - F
<i>D. pilosa</i> R. Br.	- - - F	- - - -	- - - -	- - - -	- - - -
<i>D. semilarialis</i> (Lebill.) R. Br. :	- - - F	- - - -	- - - -	- - - -	- - - -
<i>D. spicata</i> (L.) Beauv.	- - - F	- - - -	- - - -	- - - -	- - - F
<i>D. unispicata</i> Munro	- - - F	- - - -	- - - -	- - - -	- - - -
<i>Deschampsia atropurpurea</i> (Wahl) :	- - - -	- - - -	- - - -	- - - -	- - - -
<i>Scheelea</i>	N - - -	- - - -	- - - -	- - - -	- - - -
<i>D. caespitosa</i> (L.) Beauv.	N A - F	- - - -	- - - -	- - - -	N - - F
<i>D. dactynoides</i> (Trin.) Munro.	N - - -	- - - -	- - - -	- - - -	- - - -
<i>D. elongata</i> (Hook.) Munro	N A - F	- - - -	- - - -	- - - -	- - - -
<i>D. flexuosa</i> (L.) Trin.	N - - F	- - - F	- - - -	- - - -	- - - F

Affected grass species	Reaction to rust species:				
	P. graminis	P. rubigo-vera	P. glumarum	P. coronata	
<i>Deschampsia holciformis</i> Presl	N - - -	- - -	- - -	- - -	- - -
<i>Digitaria sanguinalis</i> (L.) Scop.	- - -	- - -	- - -	- - -	- F
<i>Distichlis spicata</i> (L.) Greene	N - - -	- - -	- - -	- - -	- F
<i>Echinochloa crusgalli</i> (L.) Beauv.	N - - F	- - -	- - -	- - -	- F
<i>Elymus ambiguus</i> Vasey & Scribn. ...	N - - -	N - -	- - -	- - -	- -
<i>E. arenarius</i> L.	N - - -	- F -	- - -	- - -	- -
<i>E. arenicola</i> Scribn. & Smith	N - - -	- - -	- - -	- - -	- -
<i>E. aristatus</i> Merr.	- - - -	- - -	- - -	- - -	- -
<i>E. canadensis</i> L.	N A R F	N A R F	N A R -	N A R F	- -
<i>E. caput-medusae</i> L.	- - - -	- - -	- - -	- - -	- -
<i>E. comdensatus</i> Presl.	N - - -	N A R F	N A - -	- - -	- -
<i>E. dahuricus</i> Turcz.	N - R F	- - -	- A - -	- - -	- -
<i>E. flavescens</i> Scribn. & Smith	N - - -	- - -	- - -	- - -	- -
<i>E. giganteus</i> Vahl	- - - -	- - -	- - -	- - -	- -
<i>E. glaucus</i> Buckl.	N A R F	N A R F	N A - F	- - -	- F
<i>E. innovatus</i> Beal	- A R -	- - F	- R - -	- - -	- F
<i>E. interruptus</i> Buckl.	- - - -	N A - -	- - -	- - -	- R F
<i>E. junceus</i> Fisch.	N - - -	N - -	- - -	- - -	- -
<i>E. macounii</i> Vasey	N - - -	N - -	- - -	- - -	- R F
<i>E. mollis</i> Trin.	- - - -	N - -	- - -	- - -	- -
<i>E. pseudoagropyrum</i> (Griseb.) Trin.	N - - -	N - -	- - -	- - -	- -
<i>E. sabulosus</i> Bieb.	- - - -	- - -	- - -	- - -	- -
<i>E. salina</i> Jones	- - - -	N - -	- - -	- - -	- -
<i>E. sibiricus</i> L.	N - R F	- - F	- - -	- - -	- -
<i>E. triticoides</i> Buckl.	N A R F	- - F	- - -	N - -	- -
<i>E. vancouverensis</i> Vasey	- - - -	- - -	- - -	- - -	- -
<i>E. villosus</i> Muhl.	- - - F	- - -	- - -	- - -	- -
<i>E. virescens</i> Piper	N - - -	N - -	- - -	- - -	- -
<i>E. virginicus</i> L.	N A R F	N A R F	N A R F	N - -	- F

affected grass species	Reaction to rust species:					
	P. graminis	P. rubigo-vera	P. glumarum	P. coronata		
<i>Glyceria borealis</i> (Nash) Betch ...	-	-	-	-	-	-
<i>G. elata</i> (Nash) Hitchc.	-	-	-	-	-	-
<i>G. fluitans</i> (L.) R. Br.	-	-	-	-	-	-
<i>G. grandis</i> S. Wats.	N A	F	-	-	-	R F
<i>G. pauciflora</i> Presl	N A	F	-	-	-	-
<i>G. striata</i> (Lam.) Hitchc.	-	-	-	-	-	R F
<i>Hierochloë occidentalis</i> Buckl. :	N	-	-	-	-	-
<i>H. odorata</i> (L.) Beauv.	N	-	-	-	-	A R F
<i>Holcus lanatus</i> L.	N A	R F	-	-	-	A R F
<i>H. mollis</i> L.	-	A	-	-	-	- F
<i>Hordeum brevisubulatum</i> (Trin.) :						
Link	N	R F	-	-	-	-
<i>H. bulbosum</i> L.	N	-	-	-	-	-
<i>H. gussonianum</i> Parl.	N	-	-	-	-	-
<i>H. jubatum</i> L.	N A	R F	-	-	-	R F
<i>H. marinum</i> Huds.	-	-	-	-	-	-
<i>H. montanense</i> Scribn.	-	-	-	-	-	-
<i>H. murinum</i> L.	N A	R F	-	-	-	-
<i>H. nodosum</i> L.	N	-	-	-	-	-
<i>H. pusillum</i> Nutt.	N A	R F	-	-	-	-
<i>H. spontaneum</i> C. Koch	-	A	R F	-	-	-
<i>Hystrix californica</i> Kuntze	-	-	-	-	-	-
<i>H. patula</i> Moench	N A	R	-	-	-	A R F
<i>Koeleria cristata</i> (L.) Pers.	N A	-	F	-	-	- R F
<i>Lagurus ovatus</i> L.	N	-	-	-	-	-
<i>Lamarckia aurea</i> (L.) Moench	N	-	-	-	-	A R F

affected grass species	Reaction to rust species:									
	: P. graminis	: P. rubigo-vera	: P. glumarum	: P. coronata						
<i>Leptoloma cognatum</i> (Schult.)										
Chase	-	-	-	F	:	-	-	-	-	F
<i>Limnorea arkansana</i> (Nutt.) L.										
H. Dewey	N	-	-	-	:	-	-	-	N	-
<i>Lolium multiflorum</i> Lam.	N	A	R	F	:	-	-	F	N	A
L. perenne L.	N	A	R	F	:	-	-	-	N	A
L. subulatum Vis.	N	-	-	-	:	-	-	-	-	-
L. temulentum L.	N	-	R	F	:	-	-	F	-	A
<i>Malica altissima</i> L.	-	-	-	F	:	-	-	-	-	-
M. bulbosa Geyer	N	-	-	-	:	-	-	-	-	-
M. geyeri Munro	-	-	-	-	:	N	-	-	-	-
M. nutica Walt.	-	-	-	-	:	-	-	-	-	R
M. nutans L.	-	-	-	-	:	-	-	-	-	F
<i>Milium effusum</i> L.	N	-	-	-	:	-	-	-	-	-
<i>Molinia caerulea</i> (L.) Moench.	N	-	-	-	:	-	-	-	-	A
<i>Muhlenbergia cuspidata</i> (Torr.) Rydb.	N	-	-	-	:	-	-	-	-	F
M. mexicana (L.) Trin.	N	-	-	-	:	-	-	-	-	F
M. racemosa (Michx.) B.S.P.	N	-	-	F	:	-	-	-	-	F
<i>Panicum virgatum</i> L.	N	-	-	-	:	-	-	-	-	F
<i>Paspalum setaceum</i> Michx.	-	-	-	-	:	-	-	-	N	-
<i>Phalaris angusta</i> Nees	N	-	-	-	:	-	-	-	-	-
P. arundinacea L.	N	A	R	F	:	-	-	-	-	A
P. canariensis L.	N	A	-	F	:	-	-	A	N	-
P. caroliniana Walt.	N	-	-	-	:	-	-	-	N	-
P. paradoxa L.	-	-	-	-	:	-	-	N	-	-
P. tuberosa L.	-	-	-	-	:	-	-	-	-	A

Affected grass species	Reaction to rust species:									
	P. graminis	P. rubigo-vera	P. glumarum	P. coronata						
<i>Sorghastrum nutans</i> (L.) Nash	N	-	-	-	-	-	-	-	-	-
<i>S. halepense</i> (L.) Pers.	-	-	F	-	-	-	-	-	-	F
<i>Spartina cynosuroides</i> (L.) Roth	-	-	-	-	-	-	-	-	-	F
<i>S. gracilis</i> Trin.	-	-	-	-	-	-	-	-	-	F
<i>Sphenopholis nitida</i> (Spreng.)	:	:	:	:	:	:	:	:	:	:
Scribn.	-	-	F	-	-	-	-	-	-	F
<i>S. obtusata</i> (Michx.) Scribn.	N	A	-	-	-	-	-	-	-	F
<i>S. pallens</i> (Spreng.) Scribn.	-	-	-	-	-	-	-	-	-	-
<i>Sporobolus asper</i> (Michx.) Kunth.	N	-	F	-	-	-	-	-	-	F
<i>Sporobolus cryptandrus</i> (Torr.)	:	:	:	:	:	:	:	:	:	:
A. Gray	N	R	F	-	-	-	-	-	-	R
<i>S. heterolepis</i> (A. Gray) A. Gray	-	-	-	-	-	-	-	-	-	F
<i>Stipa comata</i> Trin. and Rupr.	N	-	-	-	-	-	-	-	-	F
<i>S. coronata</i> Thurb.	N	-	-	-	-	-	-	-	-	-
<i>S. pulchra</i> Hitchc.	N	-	-	-	-	-	-	-	-	-
<i>S. spartea</i> Trin.	-	-	-	-	-	-	-	-	-	F
<i>S. viridula</i> Trin.	-	-	-	-	-	-	-	-	-	R
<i>Triodia flava</i> (L.) Smyth	N	-	F	-	-	-	-	-	-	F
<i>Trisetum canescens</i> Buckl.	N	-	-	-	-	-	-	-	-	-
<i>T. cernuum</i> Trin.	-	-	-	-	-	N	-	-	-	-
<i>T. flavescens</i> (S.) Beauv.	-	A	R	F	-	-	-	-	-	F
<i>T. montanum</i> Vasey	-	-	-	N	-	-	-	-	-	-
<i>T. sesquiflorum</i> Trin.	N	-	-	-	-	-	-	-	-	-
<i>T. spicatum</i> (L.) Richt.	-	A	-	F	-	-	-	-	-	R

Table 2. Summary of recorded reactions of wild and cultivated grasses to six varieties of *Puccinia graminis* in the United States and Canada.

Affected grass species	a/ a/	Reaction to stem rust varieties: <i>Puccinia graminis</i> :					
		: agrostidis :	: avenae :	: phleiprat.:	: poae :	: secalis :	: tritici :
<i>Agropyron caninum</i> (L.) Beauv. . . .		-	-	-	-	-	-
<i>A. ciliare</i> (Trin.) Franch		-	-	-	-	-	-
<i>A. cristatum</i> (L.) Gaertn.		-	-	-	-	-	-
<i>A. dasystachyum</i> (Hook.) Scribn. :		-	R	F	-	N A R F	N A R F
<i>A. desertorum</i> (Fisch.) Schult. . .		-	-	R	-	-	-
<i>A. elmeri</i> Scribn.		-	-	-	-	-	-
<i>A. elongatum</i> (Host) Beauv.		-	-	-	-	-	-
<i>A. imbricatum</i> (Stev.) Roem. & :		-	-	-	-	-	-
<i>Schult.</i>		-	-	-	-	-	-
<i>A. inerme</i> (Scribn. & Smith) Rydb. :		-	-	-	-	N - R F	-
<i>A. intermedium</i> (Host) Beauv. . . .		-	-	-	-	-	-
<i>A. pauciflorum</i> (Schwein.) :		-	-	-	-	-	-
<i>Hitchc.</i>		-	-	-	-	-	-
<i>A. repens</i> (L.) Beauv.		-	R	F	-	N A -	N A R F
<i>A. saxicola</i> (Scribn. & Smith) :		-	-	-	-	N A -	N - R F
<i>Piper</i>		-	-	-	-	-	-
<i>A. semicostatum</i> (Steud.) Nees . . .		-	-	-	-	-	-
<i>A. sibiricum</i> (Willd.) Beauv. . . .		-	-	-	-	-	-
<i>A. smithii</i> Rydb.		-	-	-	-	-	-
<i>A. spicatum</i> (Pursh) Scribn. & :		-	-	-	-	N A -	N A R -
<i>Smith</i>		-	-	-	-	-	-
<i>A. subsecundum</i> (Link) Hitchc. . . .		-	-	-	-	-	-
<i>A. trichophorum</i> (Link) Richt. . . .		-	-	-	-	-	-
<i>A. triticeum</i> Gaertn.		-	-	-	-	-	-
<i>A. villosum</i> (L.) Link		-	-	-	-	-	-
<i>Agrostis alba</i> L.		N A -	-	-	-	-	-
<i>A. canina</i> L.		-	-	-	-	-	-
<i>A. castellana</i> Boiss. & Reut.		-	-	-	-	-	-
<i>A. exarata</i> Trin.		-	-	-	-	-	-
<i>A. hiemalis</i> (Walt.) B.S.P.		N -	-	-	-	-	-

a/ Insofar as possible, A. S. Hitchcock's "Manual of the Grasses of the United States" (U. S. Dept. Agr. Misc. Publ. No. 200, 1935) is being followed.

Affected grass species	Reaction to stem rust varieties: <i>Puccinia graminis</i> :					
	: agrostidis:	avenae	: phleiprat.:	poae	: secalis	: tritici
<i>A. oregonensis</i> Vasey	N	-	-	-	-	-
<i>A. palustris</i> Huds.	N	-	-	-	-	-
<i>A. retrofracta</i> Willd.	-	R	-	-	-	-
<i>A. spica-venti</i> L.	-	-	F	-	-	-
<i>A. stolonifera</i> L.	N A	-	-	-	-	-
<i>A. tenuis</i> Sibth.	-	-	R F	-	-	F
<i>A. verticillata</i> Vill.	-	-	-	-	-	-
	-	-	-	-	-	-
<i>Alopecurus geniculatus</i> L.	-	-	-	-	-	-
<i>A. myosuroides</i> Huds.	A	-	-	-	-	-
<i>A. pratensis</i> L.	N A	-	-	-	-	-
<i>Ammophila arenaria</i> (L.) Link	-	A	-	-	-	-
<i>Andropogon scoparius</i> Michx.	-	-	-	-	-	-
<i>Anthoxanthum aristatum</i> Boiss.	-	-	-	-	-	-
<i>A. odoratum</i> L.	F	N	-	-	-	-
<i>Arrhenatherum elatius</i> (L.) Mert.	-	-	-	-	-	-
& Koch	-	N A R	-	-	-	-
<i>Avena fatua</i> L.	-	-	-	-	-	-
<i>Beckmannia erucaeformis</i> (L.)	-	-	-	-	-	-
Host	-	R F	-	-	-	-
<i>Bouteloua curtipendula</i> (Michx.)	-	-	-	-	-	-
Torr.	-	-	-	-	-	-
<i>Brachypodium distachyum</i> L.	-	-	-	-	-	-
<i>Brizopyrum siculum</i> Link	-	-	-	-	-	-

affected grass species	agrostidis	avenae	phleiprat.	poae	secalis	tritici
Bromus brachystachys Horn	-	-	-	-	-	-
B. brevis Steud.	-	-	-	-	-	-
B. brizaeiformis Fisch. & Mey	-	-	-	-	-	-
B. carinatus Hook & Arn.	-	-	-	-	-	R
B. catharticus Vahl.	-	-	-	-	-	R
B. ciliatus L.	-	-	-	-	-	-
B. comutatus Schrad.	-	-	-	-	-	-
B. erectus Huds.	-	-	-	-	-	-
B. hordeaceus L.	-	-	-	-	-	F
B. inermis Leyss.	-	-	-	-	-	-
B. japonicus Thunb.	-	-	-	-	-	R
B. kalmii A. Gray	-	-	-	-	-	-
B. lanuginosus Poir	-	-	-	-	-	-
B. latiglumis Hitchc.	-	-	-	-	-	F
B. macrestachys Desf.	-	-	-	-	-	-
B. madritensis L.	-	-	-	-	-	-
B. mollis L.	-	-	-	-	-	R
B. pacificus Shear	-	-	-	-	-	-
B. pumpellianus Scribn.	-	-	-	-	-	-
B. purgans L.	-	-	-	-	-	R
B. rigidus Roth	-	-	-	-	-	-
B. rubens L.	-	-	-	-	-	-
B. secalinus L.	-	-	-	-	-	-
B. sitchensis Trin.	-	-	-	-	-	N
B. squarrosus L.	-	-	-	-	-	-
B. sterilis L.	-	-	-	-	-	-
B. suksdorfii Vasely	-	-	-	-	-	-
B. tectorum L.	-	-	-	-	-	N
B. tomentellus Boiss.	-	-	-	-	-	-
Calamagrostis canadensis (Michx.) Beauv.	-	-	-	-	-	-
Cynodon dactylon (L.) Pers.	-	-	-	-	-	-

Affected grass species	Reaction to stem rust varieties: <i>Puccinia graminis</i> :									
	: agrostidis	: avenae	: phleiprat.	: poae	: secalis	: tritici				
<i>Cynosurus cristatus</i> L.	-	-	-	-	-	-	-	-	-	F
<i>Dactylis glomerata</i> L.	- A -	: N A -	: N A R -	: - - -	: - - -	: F	: - - -	: N A R F		
<i>Dactyloctenium aegyptium</i> (L.) Richt.	-	-	-	-	-	-	-	-	-	-
<i>Darthonia pilosa</i>	-	-	-	-	-	-	-	-	-	-
<i>D. spicata</i> (L.) Beauv.	-	-	-	-	-	-	-	-	-	-
<i>Deschampsia caespitosa</i> (L.) Beauv.	:	:	:	:	:	:	:	:	:	N
<i>D. elongata</i> (Hook.) Munro	-	- A -	-	-	-	-	-	-	-	-
<i>D. flexuosa</i> (L.) Trin.	-	-	-	-	-	-	-	-	-	-
<i>Echinochloa crusgalli</i> (L.) Beauv.:	-	-	-	-	-	-	-	-	-	-
<i>Elymus ambiguus</i> Vasey & Scribn.:	-	-	-	-	-	-	-	-	-	-
<i>E. canadensis</i> L.	-	-	-	-	-	-	-	-	-	-
<i>E. condensatus</i> Presl.	-	-	-	-	-	-	-	-	-	-
<i>E. dahuricus</i> Turcz.	-	-	-	-	-	-	-	-	-	-
<i>E. flavescens</i> Scribn. & Smith ..	-	-	-	-	-	-	-	-	-	-
<i>E. glaucus</i> Buckl.	-	-	-	-	-	-	-	-	-	-
<i>E. innovatus</i> Beal	-	-	-	-	-	-	-	-	-	-
<i>E. junceus</i> Fisch.	-	-	-	-	-	-	-	-	-	-
<i>E. macounii</i> Vasey	-	-	-	-	-	-	-	-	-	-
<i>E. sibiricus</i> L.	-	-	-	-	-	-	-	-	-	-
<i>E. triticoides</i> Buckl.	-	-	-	-	-	-	-	-	-	-
<i>E. villosus</i> Muhl.	-	-	-	-	-	-	-	-	-	-
<i>E. virescens</i> Piper	-	-	-	-	-	-	-	-	-	-
<i>E. virginicus</i> L.	-	-	-	-	-	-	-	-	-	-
<i>Eragrostis abyssinica</i> (Jacq.) Link	:	:	:	:	:	:	:	:	:	F

affected grass species	Reaction to stem rust varieties: <i>Puccinia graminis</i> :									
	: agrostidis :	: avenae :	: phleiprat.:	: poae :	: secalis :	: tritici :				
<i>Eragrostis pectinacea</i> (Michx.)										
Nees	- - - -	- - - F	- - - -	- - - -	- - - -	- - - -				
<i>Festuca dertonensis</i> (All.)										
Aschers. & Graebn.	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -				
<i>F. elatior</i> L.	- - - -	- A R F	- - - -	- - - -	- - - -	- - - -				
<i>F. gigantea</i> (L.) Vill.	- - - -	- - - F	- - - -	- - - -	- - - -	- - - A				
<i>F. idahoensis</i> Elmer	- - - -	- - - F	- - - -	- - - -	- - - -	- - - -				
<i>F. nyuros</i> L.	- - - -	- N A -	- - - -	- A R -	- - - -	- - - R -				
<i>F. obtusa</i> Spreng.	- - - -	- - - F	- - - -	- - - -	- - - -	- - - -				
<i>F. occidentalis</i> Hook.	- - - -	- - - F	- - - -	- - - -	- - - -	- - - -				
<i>F. octoflora</i> Walt.	- - - -	- A - -	- - - -	- - - -	- - - -	- - - -				
<i>F. ovina</i> L.	- - - -	- - R F	- - - -	- - - F	- - - -	- - - -				
<i>F. pacifica</i> Piper	- - - -	- A R -	- - - -	- A R -	- - - -	- - - F				
<i>F. rubra</i> L.	- - - -	- - - F	- - - -	- - - F	- - - -	- - - -				
<i>F. scabrella</i> Torr.	- - - -	- - - F	- - - -	- - - -	- - - -	- - - -				
<i>F. thurberi</i> Vasey	- - - -	- A - -	- - - -	- - - -	- - - -	- - - -				
<i>F. viridula</i> Vasey	- - - -	- A - -	- - - -	- - - -	- - - -	- - - -				
<i>Glyceria canadensis</i> (Michx.)										
Trin.	- - - -	- - - F	- - - -	- - - -	- - - -	- - - -				
<i>G. pauciflora</i> Presl	- - - -	- N - F	- - - -	- - - -	- - - -	- - - -				
<i>Hierochloe odorata</i> (L.) Beauv. .:	- - - -	- N - -	- - - -	- - - -	- - - -	- - - -				
<i>Holcus lanatus</i> L.	- A - -	- N A R -	- - - -	- A - F	- - - -	- - - F				
<i>H. mollis</i> L.	- - - -	- A - -	- - - -	- - - -	- - - -	- - - -				
<i>Hordeum brevisubulatum</i> (Trin.)										
Link.	- - - -	- - - F	- - - -	- - - -	- - - -	- - - -				
<i>H. bulbosum</i> L.	- - - -	- - - F	- - - -	- - - -	- - - -	- - - -				
<i>H. gussonianum</i> Parl.	- - - -	- - R F	- - - -	- - - -	- - - -	- - - -				
<i>H. jubatum</i> L.	- - - F	- - - F	- - - -	- R - -	- - - -	- - - A -				
<i>H. murinum</i> L.	- - - -	- A R F	- - - -	- - - F	- - - -	- - - R -				
<i>H. nodosum</i> L.	- - - -	- - - F	- - - -	- - - -	- - - -	- - - -				

affected grass species	Reaction to stem rust varieties: Puccinia graminis:					
	agrostidis	avenae	phleibrat.	poae	secalis	tritici
H. pusillum Nutt.	-	- R -	-	-	- N A -	- N A -
H. spontaneum C. Koch	-	- R F	-	-	-	- A -
Hystrix patula Moench	-	- R -	-	-	- N A -	- N A -
Koeleria cristata (L.) Pers.	- A -	- N A - F	-	-	- F	- A - F
Linnodea arkansana (Nutt.) L. H. Dewey	-	- N -	-	-	-	-
Lolium multiflorum Lam.	-	- R -	- A R -	-	-	- F
L. perenne L.	-	- R F	- A R -	-	- F	- F
L. temulentum L.	-	- R -	-	-	-	- T
Melica altissima L.	-	-	-	-	-	- F
Milium effusum L.	-	- N -	-	-	-	-
Muhlenbergia racemosa (Michx.) B.S.P.	-	- F	-	-	- F	- F
Panicum virgatum L.	-	-	-	-	-	- N -
Phalaris arundinacea L.	-	- A - F	-	-	-	-
P. canariensis L.	- F	- N A -	- A -	-	- F	- F
Phleum boeumeri Wibel.	-	- R -	-	-	-	-
P. paniculatum Huds.	-	- A -	-	-	-	-
P. pratense L.	-	- N A R F	- N A -	- F	- F	- F
Poa annua L.	-	- A R F	-	-	-	-
P. annua L.	-	- F	-	- A - F	-	-
P. arida Vasey	-	- F	-	-	-	-
P. attenuata Trin.	-	- F	-	-	-	-
P. bulbosa L.	-	- A -	-	-	-	-

affected grass species	Reaction to stem rust varieties: <i>Puccinia graminis</i> :				
	:agrostidis:	avenae	:phleibrat.:	poae	:secalis : tritici
<i>Sphenopholis nitida</i> (Spreng.)					
Scribn.	:	- - F	:	- - -	: - - -
<i>S. obtusata</i> (Michx.) Scribn.	- - -	N A -	:	- - -	: - - -
<i>Sporobolus asper</i> (Michx.) Kunth.:	- - -	- - F	:	- - -	: - - F
<i>S. cryptandrus</i> (Torr.) L. Gray.:	- - -	- - F	:	- - -	: N - - R
<i>Stipa pulchra</i> Hitchc.	- - -	- - -	:	- - -	: N - -
<i>S. viridula</i> Trin.	- - -	- R F	:	- - F	: - - F
<i>Triodia flava</i> (L.) Smith	- - -	- - F	:	- - -	: - - -
<i>Trisetum flavescens</i> (L.) Beauv.:	- - -	- A -	:	- - -	: - - -
<i>T. spicatum</i> (L.) Richt.	- - -	- A -	:	- - -	: - - -

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Supplement 131

THE ASCOMYCETES OF GEORGIA

August 15, 1941



The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

THE ASCOMYCETES OF GEORGIA

By Julian H. Miller, Department of Plant
Pathology, University of Georgia

Plant Disease Reporter
Supplement 131

August 15, 1941

Introduction

Georgia is surrounded by states with much early mycological development, but heretofore there has never been published a list of any of its fungi. In 1897 Underwood (6) said, "Georgia - nothing is known of its fungous flora except a few scattering species reported by Mr. Ravenel in his exsiccatae." These collections from the Ravenel station at Darien, Georgia, constitute the only references to fungi to get into the literature of the period.

This present list contains many names found in the papers of L. von Schweinitz, M. J. Berkeley, and M. A. Curtis, or Berkeley and Ravenel, which is to be expected as the soil, climate, and host plants are very similar to those of the Carolinas. On the other hand some fungi new to the literature of the region, as well as many hosts, are cited for the first time.

The fungi listed represent chiefly collections of the writer and students extending over the past 20-year period, with additions since 1937 by George Thompson, and references from papers by B. B. Higgins, W. A. Jenkins, John R. Cole, and J. B. Demaree. There are 221 genera and 761 species in this paper. Only one collection is cited from a county, except when the fungus occurs on a different host. The species are arranged alphabetically within taxonomic groups, and under each is placed the hosts and county in which collected.

Most of the collecting has been in the piedmont region of north-east Georgia and the adjoining mountain counties. Only a few excursions have been undertaken in the southern part of the State, and the great coastal plain swamps are still for the most part a virgin field for the mycologist. Long periods of drought are the rule in this piedmont area and the rains do not last long enough during the growing season for fleshy fungi. This is the chief reason for the relatively few Discomycetes and the larger proportion of Pyrenomycetes on woody hosts. Middle and north Georgia are then especially favorable for the latter, and the increased number of hosts over more northern states adds to their complexity.

The scheme of classification follows in part recent books by Bessey (1), Gäumann and Dodge (3), and Nannfeldt (4), along with views previously expressed by the writer in various papers; and is an attempt

to approach a natural system. The primary separations into Plectomycetes, Discomycetes, and Pyrenomycetes follow traditional lines. Within the first group the only radical departure is the inclusion of the family Ceratostomataceae. This is probably a temporary move, but at the present time it seems logical as the asci in certain species develop from cells at different levels and there are no paraphyses.

The Discomycetes are divided into operculates and inoperculates after Boudier (2), while the species in the former are arranged according to Seaver (5), and in the latter chiefly after Nannfeldt (4).

The separations in the Pyrenomycetes are based on internal or perithecial centrum characters discovered by F. von Höhnelt, F. Theissen, H. and P. Sydow, and others. The order Lophiostomatales includes perithecial forms with a compressed ostiole, and constitutes a connecting link between the Hysteriales and Sphaeriales.

The Sphaeriales concept comprises forms with true perithecia, with definite walls and ostioles and free paraphyses. The Hypocreaceae, based on color and texture, is not entirely a natural group as set up in this paper, but the other families seem to constitute phylogenetic centers, with many connecting forms. The last family Phyllachoraceae, with a well developed clypeus, is placed here because the centrum is wholly that of the Sphaeriales rather than Dothideales.

Perithecial forms with asci in locules, either one or many, are grouped in the Dothideales and Pseudosphaeriales. The former is characterized by fasciculate asci arising from a central plectenchyma at the base of the cavity; while in the latter the asci lie among intertheacial threads or paraphysoids, connected at top and bottom of the locule.

An attempt has been made to apply the International Rules of Nomenclature to specific names where practicable, especially in the use of Fries, "Systema Mycologicum", as the starting point for the Ascomycetes. To secure this conformity a few changes have been made such as Mitrula paludosa Fr. for the generally accepted Mitrula phalloides (Bull.) Chev., and Hypoxylon fragiforme (Pers. ex Fr.) Kickx, for Hypoxylon coccineum Bull. In many other cases it has been impossible to arrive at a solution, because of the lack of access to types, which are for the most part in European herbaria.

The correct application of specific names has been especially difficult in many groups owing to the lack of recent monographs. Names are fairly correct in the operculate Discomycetes, Dasyscypha, Lachnum, Lophodermium, Hysteriales, Hypocreaceae, Diaporthaceae, and in the Xylariaceae. Many of the names in the other groups are only temporary expedients. For example, the large group labelled Eutypella fraxinicola contains morphologically similar forms occurring on any firm deciduous wood. So far each host form bears a separate name, but only cultural and cross-inoculation studies coupled with examinations of types will

show whether there should be more than one species, and the correct name or names.

The writer wishes to express his appreciation for aid in preparation of the manuscript to Miss Gwendolyn Burton, and for help in identifying specimens to Miss Edith Cash, F. J. Seaver, W. W. Diehl, J. A. Stevenson, L. E. Wehmeyer, M. L. Lohman, G. R. Bisby, and Miss E. M. Wakefield.

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GEORGIA ASCOMYCETES

A. PLECTOMYCETES

I. GYNOASCALLES

1. Aspergillus niger Van Tiegh.
On *Allium cepa* L., *Medicago sativa* L., Clarke.

II. MYRIANGIALES

1. Elsinoë randii Jenkins & Bit.
On *Carya pecan* (Marsh.) Engl. & Graebn., Dougherty.
2. Elsinoë solidaginis Jenkins & Ukelb.
On *Solidago edisoniana* Mack., *S. fistulosa* Mill.,
S. leavenworthii T. & G., *S. sempervirens* L., *S. serotina* Ait., Chatham.
3. Elsinoë veneta (Burk.) Jenkins.
On *Rubus idaeus* L., *R. occidentalis* L., Clarke.
4. Myriangium asterinosporum (Ell. & Ev.) Mill.
On *Crataegus collina* Chapm., Clarke; *C. crus-galli* L.,
Walton; *C. michauxii* Pers., *C. spathulata* Michx., Clarke; *C. uniflora*
Moench., Greene; *C. viridis* L., Oglethorpe; *Ilex decidua* Walt., Walton;
Malus angustifolia (Ait.) Michx., Washington; *M. pumila* Mill., Clarke.
5. Myriangium duriaei Mont. & Berk.
On *Liquidambar styraciflua* L., Clarke; *Nyssa biflora* Walt.,
Clarke; *N. sylvatica* Marsh., Clarke, DeKalb, Rabun, Ware; *Quercus nigra* L.,
Clarke.
6. Myriangium tuberculans Miles
On *Carya alba* (L.) K. Koch, *C. glabra* (Mill.) Sweet,
Clarke; *C. pecan* (Marsh.) Engl. & Graebn., Clarke, Dougherty; *Carya* sp.,
Clarke.

III. ERYSIPHALES

1. Erysiphaceae

1. Erysiphe cichoracearum DC
On *Ambrosia artemisiifolia* L., *Aster ericoides* L. var.
platyphyllus T. & G., *A. sagittifolius* Wed. var. *dissitiflorus* Burg.,
Aster sp., *Cucumis melo* L., *Cucurbita pepo* L., *Dahlia* sp., *Helianthus*
annuus L., *H. scaberrimus* Ell., *H. tuberosus* L., *Plantago rugelii* Dene.,
Verbena sp., *Xanthium canadense* Mill., *Zinnia elegans* Jacq., Clarke.

2. Erysiphe gerardiae Schw.On *Gerardia virginica* (L.) BSP., Clarke.3. Erysiphe graminis DC.On *Hordeum pusillum* Nutt., *H. vulgare* L., Clarke; *Triticum aestivum* L., Clarke, Washington.4. Erysiphe lagerstroemiae West.On *Lagerstroemia indica* L., Clarke, Liberty.5. Erysiphe liriiodendri Schw.On *Liriodendron tulipifera* L., Clarke.6. Erysiphe polygoni DC.On *Lathyrus odoratus* L., *Oenothera biennis* L., *O. laciniata* Hill, *Phaseolus vulgaris* L., *Pisum arvense* L. var., *P. sativum* L., *Polygonum aviculare* L., *P. pennsylvanicum* L., *Trifolium dubium* Sibth., *T. incarnatum* L., *T. pratense* L., *T. procumbens* L., *Vigna sinensis* (L.) Endl., Clarke.7. Microsphaera alni DC. ex Wint.On *Azalea calendulacea* Michx., Rabun; *Carya pecan* (Marsh.) Engl. & Graebn., *Catalpa bignonioides* Walt., *Ceanothus americanus* L., Clarke; *Cornus alternifolia* L. f., Rabun; *Syringa vulgaris* L., Clarke.8. Microsphaera diffusa Cke. & Pk.On *Ilespedeza striata* (Thunb.) H. & Arn., *Phaseolus vulgaris* L., Clarke.9. Microsphaera euphorbiae Berk. & Curt.On *Euphorbia corollata* L., Clarke, Rabun.10. Microsphaera quercina (Schw.) Burr.On *Quercus alba* L., *Q. marilandica* Muench., *Q. nigra* L., *Q. velutina* Lam., Clarke.11. Microsphaera ravenelii Berk.On *Gleditsia triacanthos* L., Clarke.12. Microsphaera vaccinii (Schw.) Cke. & Pk.On *Vaccinium vacillans* Kalm, Clarke.13. Phyllactinia corylea Pers. ex Karst.On *Castanea dentata* (Marsh.) Borkh., Rabun; *Cornus florida* L., *Quercus nigra* L., *Q. stellata* Wang., *Ulmus alata* Michx., Clarke.14. Podosphaera leucotricha (Ell. & Ev.) Salm.On *Malus pumila* Mill., Jonathan, Red June, Rome Beauty, Rabun.15. Podosphaera oxyacanthae (DC.) D By.On *Prunus domestica* L., *Prunus umbellata* Ell., Clarke.

16. Sphaerotheca humuli (DC.) Burr.
On *Taraxacum officinale* Weber, Clarke.
17. Sphaerotheca pannosa (Wallr.) Lev.
On *Rosa* sp., Clarke.
18. Uncinula circinata Cke. & Pk.
On *Acer rubrum* L., Clarke.
19. Uncinula flexuosa Pk.
On *Aesculus georgiana* Sarg., Clarke.
20. Uncinula geniculata Ger.
On *Morus rubra* L., Clarke.
21. Uncinula macrospora Pk.
On *Ulmus alata* Michx., Clarke.
22. Uncinula necator (Schw.) Burr.
On *Vitis labrusca* L. var. Concord, Rabun.
23. Uncinula parvula Cke. & Pk.
On *Celtis georgiana* Small, Clarke.
24. Uncinula salicis (DC.) Wint.
On *Salix humilis* Marsh., Rabun.

2. Perisporiaceae

1. Capnodium citri Berk. & Desm.
On *Gardenia jasminoides* Ellis, Pierce.
2. Meliola amphitricha Fr.
On *Acer negundo* L., Clarke; *Magnolia virginiana* L., Pierce;
Persea pubescens (Pursh) Sarg., Pierce, Washington.
3. Meliola bidentata Cke.
On *Bignonia capreolata* L., Oglethorpe.
4. Meliola magnoliae Stev.
On *Magnolia virginiana* L., Chatham.
5. Meliola nidulans (Schw. ex Fr.) Cke.
On *Vaccinium virgatum* Ait., *Vaccinium crassifolium* Ait.,
Glynn.
6. Meliola palmicola Wint.
On *Sabal minor* (Jacq.) Pers., Charlton, Glynn.
7. Meliola tenuis Berk. & Curt.
On *Arundinaria macrosperma* Michx., Jenkins; *Arundinaria*
tecta (Walt.) Muhl., Charlton, Clarke, Tift.

8. Phaeostigme picea (Berk. & Curt.) Syd.
On *Magnolia virginiana* L., Chatham, Tift.

9. Scorias spongiosa Schw. ex Fr.
On *Alnus rugosa* (DuRoi) Spreng., *Fagus grandifolia* Ehrh.,
Clarke.

3. Ceratostomataceae

1. Ceratostomella fimbriata (Ell. & Halsted) Elliott.
On *Ipomoea batatas* (L.) Lam., Clarke, Conee, Tift.
2. Ceratostomella pini Muench
On *Pinus echinata* Mill., Clarke; *P. taeda* L., Greene.

B. DISCOMYCETES OPERCULATAE

I. PEZIZALES

1. Pezizaceae

1. Aleuria aurantia (Pers. ex Fr.) Fckl.
On soil, Rabun.
2. Aleuria rutilans (Fr.) Gill.
On soil, Clarke.
3. Ascobolus furfuraceus Pers. ex Fr.
On cow dung, McIntosh.
4. Bulgaria rufa Schw.
On *Quercus* sp., Clarke, Rabun; on sticks, Clarke.
5. Bulgaria melastoma (Sow. ex Fr.) Seav.
On soil, Clarke.
6. Lachnea hemisphaerica (Wigg. ex Fr.) Gill.
On soil, Clarke.
7. Lachnea scutellata (L. ex Fr.) Gill.
On sticks, Clarke, Conee.
8. Lamprospora cec'hqueraultii (Crouan) Boud.
On soil, Clarke.
9. Lasiobolus pilosus (Fr.) Sacc.
On cow dung, Clarke, McIntosh.
10. Macropodia macropus (Pers. ex Fr.) Fckl.
On wood soil, Clarke.

11. Otidea grandis Pers. ex Mass.
On soil, Clarke.
12. Otidea leporina (Batsch. ex Fr.) Fckl.
On soil, Clarke.
13. Paxina acetabulum (L. ex Fr.) Kuntze
In woods under pines, Clarke.
14. Paxina sulcata (Pers. ex Fr.) Kuntze
In wood soil, Clarke.
15. Peziza badia Pers. ex Fr.
In woods, Clarke
16. Peziza brunneoatra Desm.
In woods, Clarke
17. Peziza repanda Wahl. ex Fr.
In woods, Clarke.
18. Peziza succosa Berk.
In wood soil, Clarke.
19. Peziza vesiculosa Bull. ex Fr.
In soil, Clarke.
20. Peziza sp.
In soil, Clarke.
21. Pithya cupressina (Batsch. ex Fr.) Fckl.
On Juniperus sp., DeKalb; Thuja occidentalis L., Clarke.
22. Plectania occidentalis (Schw.) Seav.
In woods, Clarke.
23. Pseudoplectania nigrella (Pers. ex Fr.) Fckl.
In woods, Clarke.
24. Urnula craterium Schw. ex Fr.
On Quercus sp., Clarke.

2. Helvellaceae

1. Helvella elastica Bull. ex Fr.
In woods, Clarke.
2. Helvella lacunosa Afz. ex Fr.
In woods, Clarke.

3. Morchella conica Pers. ex Krombh.
In woods, Clarke.
4. Morchella esculenta Pers. ex Fr.
In woods, Clarke.
5. Morchella semilibera Fr.
In woods, Clarke.

DISCOMYCETESINOPERCULATAEII. OSTROPALES1. Ostropaceae

1. Naemacyclus niveus (Pers. ex Fr.) Sacc.
On *Pinus sylvestris* L., Clarke.
2. Schizoxylon insigne (DeNot.) Rehm.
On *Carya alba* (L.) K. Koch, Clarke; *C. carolinae-septentrionalis* (Ashe) Engl. & Graebn., Oglethorpe; *C. glabra* (Mill.) Sweet, *Corylus americana* Walt., *Fraxinus pennsylvanica* Marsh. var. *lanceolata* (Borkh.) Sarg., Clarke; *Hamamelis virginiana* L., Rabun; *Ilex opaca* Ait., *Juglans nigra* L., *Salix alba* L., *Solidago altissima* L., Clarke; *Viburnum prunifolium* L., Oglethorpe; *Viburnum rufidulum* Raf., *Vitis rotundifolia* Michx., Clarke.
3. Stictis fimbriata Schw.
On *Pinus taeda* L., Clarke, Oglethorpe.
4. Stictis radiata Pers. ex Fr.
On *Erigeron canadensis* L., *Holcus halepensis* L., *Ligustrum vulgare* L., *Melia azedarach* L., *Pueraria hirsuta* Schneid., *Rumex crispus* L., Clarke; *Sambucus canadensis* L., Rabun; *Smilax glauca* Walt., *Solidago* sp., *Zea mays* L., Clarke.
5. Stictis sp.
On *Cyrilla racemiflora* L., Dooly.
6. Vibrissea truncorum Alb. & Schw. ex Fr.
On *Liquidambar styraciflua* L., *Quercus alba* L., Clarke.

III. HELOTIALES1. Dermateaceae

1. Calloria fusarioides (Berk.) Fr.
On *Boehmeria cylindrica* (L.) Sw., *Pilea pumila* (L.) Gray, Clarke.

2. Dermatea crataegicola Durand
On *Crataegus michauxii* Pers., *C. spathulata* Michx., Clarke.
3. Diplocarpon earliana (Ell. & Ev.) Wolf
On *Fragaria virginiana* Duch., Clarke, Cobb.
4. Diplocarpon rosae (Schw.) Wolf.
On *Rosa* sp., Clarke.
5. Discohainesia oenotherae (Cke. & Ell.) Nannf.
On *Castanea mollissima* Bl., *Liriodendron tulipifera* L.,
Oenothera biennis L., *Rhus glabra* L., Clarke.
6. Drepanopeziza populi-albae (Kleb.) Nannf.
On *Populus alba* L., Clarke.
7. Fabraea maculata Atk.
On *Amelanchier canadensis* (L.) Medic., *Cydonia oblonga* Mill.,
Clarke.
8. Higginsia hiemalis (Hig.) Nannf.
On *Prunus avium* L., Clarke; *P. cerasus* L., Spalding.
9. Higginsia kerriae (Stew.) Nannf.
On *Kerria japonica* DC., Clarke.
10. Higginsia lutescens (Hig.) Nannf.
On *Prunus serotina* Ehrh., Clarke, Spalding.
11. Mollisia atrata (Pers. ex Fr.) Karst.
On *Ambrosia artemisiifolia* L., *Aster ericoides* L. var.
platyphyllus T. & G., *Bidens frondosa* L., *Chelone glabra* L., *Eupatorium*
purpureum L., *Hypericum gentianoides* (L.) BSP., *Sonchus oleraceus* L.,
Clarke.
12. Mollisia cinerea (Batsch ex Fr.) Karst.
On *Aster puniceus* L., *Quercus cinerea* Michx., *Q. coccinea*
Muench., *Vitis rotundifolia* Michx., Clarke.
13. Mollisia polygoni (Lasch) Gill.
On *Polygonum pennsylvanicum* L., Clarke.
14. Mollisia scirpina (Pk.) Sacc.
On *Scirpus georgianus* Harp., Clarke.
15. Mollisia sp.
On *Carex crinita* Lam., Clarke.
16. Mollisia sp.
On *Corylus maxima* Mill., Clarke.

17. Mollisia sp.
On *Glyceria nervata* (Willd.) Trin., Clarke.
18. Mollisia sp.
On *Prunus serotina* Ehrh., Clarke
19. Mollisia sp.
On *Salix nigra* L., Clarke
20. Mollisia sp.
On *Sarracenia flava* L., Pierce
21. Mollisia sp.
On *Thuja occidentalis* L., Clarke
22. Naevia sp.
On *Magnolia macrophylla* Michx., DeKalb
23. Pezicula carnea (Cke. & Ell.) Rehm
On *Acer rubrum* L., Clarke.
24. Pezicula carpineae (Pers. ex Fr.) Tul.
On *Carpinus caroliniana* Walt., Clarke
25. Pezicula sp.
On *Alnus rugosa* (DuRoi) Spreng., Clarke.
26. Pezicula sp.
On *Oxydendrum arboreum* (L.) DC., Clarke.
27. Phaeangium magnisporum Cash
On *Betula nigra* L., Clarke
28. Pseudohelotium sacchariferum (Berk.) Sacc.
On *Liquidambar styraciflua* L., Clarke.
29. Pseudopeziza medicaginis (Lib.) Sacc.
On *Medicago arabica* Huds., *M. sativa* L., Clarke
30. Pyrenopeziza foliicola (Karst.) Sacc.
On *Alnus rugosa* (DuRoi) Spreng., Clarke.
31. Pyrenopeziza leucoderme Cash
On *Acer floridanum* (Chapm.) Pax., Elbert; *A. leucoderme*
Small, Clarke, Oglethorpe; *A. rubrum* L., Rabun.
32. Pyrenopeziza minuta Cash
On *Tilia heterophylla* Vent. var. *michauxii* (Nutt.) Sarg.,
Clarke.

33. Pyrenopeziza prinicola (Ell. & Ev.) Cash
On *Quercus maxima* (Marsh.) Ashe, Walton; *Q. rubra* L.,
Q. stellata Wang., Clarke.

34. Pyrenopeziza sp.
On *Castanea pumila* (L.) Mill., Hall.

35. Pyrenopeziza sp.
On *Galium pilosum* Ait., Clarke.

36. Pyrenopeziza sp.
On *Sericocarpus linifolius* (L.) BSP., Oglethorpe

2. Phacidiaceae

- (A) 1. Coccomyces dentatus (Schm. ex Fr.) Sacc.
On *Rhododendron maximum* L., Rabun
2. Coccomyces triangularis (Schw. ex Fr.) Sacc.
On *Quercus alba* L., Clarke.
3. Coccomyces sp.
On *Cliftonia monophylla* (Lam.) Sarg., Pierce.
4. Colpoma azaleae (Schw.) Cke.
On *Azalea canescens* Michx., Clarke.
5. Colpoma juniperinum Cke. & Pk.
On *Juniperus virginiana* L., Elbert, Rabun.
6. Colpoma quercinum (Pers. ex Fr.) Wallr.
On *Castanea dentata* (Marsh.) Borkh., *Quercus* sp., Rabun.
7. Hypoderma commune (Fr.) Duby
On *Amsonia tabernaemontana* Walt., Clarke; *Aster* sp.,
Clarke, Rabun; *Bidens frondosa* L., *Bignonia capreolata* L., *Chelone glabra*
L., *Eupatorium purpureum* L., *Fraxinus americana* L., Clarke; *Helenium*
curtisii Gray, Atkinson; *Helianthus microcephalus* T. & G., *Lespedeza*
frutescens (L.) Britt., Clarke; *Magnolia tripetala* L., Oglethorpe;
Rudbeckia laciniata L., *Silphium dentatum* Ell., *Silphium lapsuum* Small,
Solidago altissima L., *S. caesia* L., *S. erecta* Pursh, *S. odora* Ait.,
S. serotina Ait., *Vernonia noveboracensis* (L.) Willd., Clarke.
8. Hypoderma desmazierii Duby
On *Pinus strobus* L., Rabun.
9. Hypoderma ilicinum DeNot.
On *Quercus nigra* L., Clarke, Glynn; *Q. virginiana* Mill.,
Glynn.

10. Hypoderma lethale Dearr.
On *Pinus echinata* Mill., Clarke.
11. Lophodermium arundinaceum (Schrad. ex Fr.) Chev.
On *Arundinaria tecta* (Walt.) Muhl., Clarke.
12. Lophodermium cyrillicola Tracy & Earle
On *Cyrilla racemiflora* L., Dooly.
13. Lophodermium maculare (Fr.) DeNot
On *Vaccinium vacillans* Kalm, Rabun.
14. Lophodermium nitens Darker
On *Pinus excelsa* Wall., Clarke; *Pinus strobus* L., Rabun, Union.
15. Lophodermium pinastri (Schrad. ex Fr.) Chev.
On *Pinus caribaea* Mor., Clarke, Pierce; *P. echinata* Mill.,
P. jeffreyi Murr., *P. mugo* Turra, *P. palustris* Mill., Clarke, McIntosh;
P. ponderosa Laws, Clarke; *P. rigida* Mill., Union; *P. strobus* L., Clarke,
Rabun; *P. taeda* L., Clarke, Glynn; *P. virginiana* Mill., Clarke, Jackson.
16. Lophodermium punctiforme (Fr.) Fckl.
On *Liriodendron tulipifera* L., Clarke.
17. Lophodermium rubicola Earle
On *Rubus argutus* Lk., Clarke; *Rubus* sp., Glynn.
18. Lophodermium typhinum (Fr.) Lamb.
On *Typha latifolia* L., Clarke.
19. Lophodermium sp.
On *Smilax laurifolia* L., McDuffie.
20. Macroderma curtisii (Berk. & Rav.) von Höhn.
On *Ilex opaca* Ait., Clarke, McIntosh, Rabun, Washington.
21. Rhytisma acerinum Pers. ex Fr.
On *Acer floridanum* (Chapm.) Pax., Washington; *A. rubrum*
L., Clarke, Glynn, Pierce.
22. Rhytisma decolorans Fr.
On *Lyonia ligustrina* (L.) DC., Rabun; *L. ligustrina* (L.)
DC. var. *foliosiflora* (Michx.) Fern., Lincoln.
23. Rhytisma prini Schw. ex Fr.
On *Ilex decidua* Walt., Dooly, Greene.
24. Rhytisma salicinum Pers. ex Fr.
On *Salix tristis* Ait., Rabun.

25. Rhytisma sp.
On *Ilex cassine* L., Charlton.

- (B) 26. Cocconhacidium pini (Alb. & Schw. ex Fr.) Rehm.
On *Pinus excelsa* Wall., Clarke; *P. strobus* L., Clarke,
Union.

27. Propolis leonis (Tul.) Rehm.
On *Pinus echinata* Mill., *P. sylvestris* L., Clarke; *Tsuga canadensis* (L.) Carr., Rabun.

28. Propolis rhodoleuca (Sommf. ex Fr.) Phil.
On *Pinus echinata* Mill., *P. strobus* L., Clarke.

29. Propolis versicolor Fr.
On *Alnus rugosa* (DuRoi) Spreng., *Azalea canescens* Michx.,
Liriodendron tulipifera L., Clarke; *Quercus nigra* L., Clarke, Washing-
ton; *Q. rubra* L., Clarke; *Quercus* sp., Rabun; branches, McIntosh.

30. Sphaerangium sp.
On *Tilia heterophylla* Vent. var. *michauxii* (Nutt.) Sarg.,
Clarke.

31. Sphaeropeziza arundinariae Cash.
On *Arundinaria tecta* (Walt.) Muhl., Clarke, Oglethorpe.

3. Hyaloscyphaceae

1. Lachnum arundinariae Cash
On *Arundinaria tecta* (Walt.) Muhl., Clarke.

2. Lachnum ciliare (Schröd. ex Fr.) Rehm
On *Quercus alba* L., *Q. nigra* L., Clarke; *Q. phellos* L.,
Oglethorpe, Washington; *Q. rubra* L., Clarke; *Q. shumardii* Buckl.,
Oglethorpe; *Q. velutina* Lam., Clarke.

3. Lachnum corni Cash
On *Cornus amomum* Mill., Clarke, Jackson.

4. Lachnum halesiae Cash
On *Halesia carolina* L., Clarke

5. Lachnum northieri (Cke.) Rehm
On *Hypericum mutilum* L., Clarke.

6. Lachnum pollinarium (Cke.) Cash
On *Quercus catesbaei* Michx., Cook, Washington; *Q. montana*
Willd., Clarke, Rabun; *Q. prinus* L., Washington; *Q. pumila* Walt., Tift;
Q. rubra L., Burke; *Q. stellata* Wang., Clarke.

7. Lachnum virginellum (Cke.) Rehm
On Polycodium candicans Small, Clarke.
8. Lachnum virgineum (Batsch ex Fr.) Karst.
On Alnus rugosa (DuRoi) Spreng., Taxodium distichum (L.)
Rich., Clarke.
9. Lachnum sp.
On Bumelia lycioides Gaertn. f., Clarke
10. Lachnum sp.
On Quercus maxima (Marsh.) Ashe, Rabun; Q. pumila Walt.,
Tift.

4. Helotiaceae

1. Atropellis tingens Lohman & Cash
On Pinus echinata Mill., P. taeda L., Clarke; P. virginiana Mill., Clarke, Rabun.
2. Beloniopsis guestophalicum (Rehm) Nannf.
On Carex lurida Wahl., Juncus effusus L., Clarke.
3. Cenangium atropurpureum Cash & Davidson
On Pinus taeda L., Clarke.
4. Cenangium balsameum Pk.
On Tsuga canadensis (L.) Carr., Rabun.
5. Cenangium episphaeria Schw.
On Acer rubrum L., Clarke
6. Cenangium ferruginosum Fr.
On Pinus echinata Mill., P. taeda L., Clarke.
7. Chlorociboria aeruginosa (Oed. ex Fr.) Seav.
On Castanea dentata (Marsh.) Borkh., Rabun.
8. Chlorociboria versiformis (Pers. ex Fr.) Seav.
On Castanea dentata (Marsh.) Borkh., Rabun.
9. Chlorociboria sp.
On wood, Clarke.
10. Chlorosplenium chlorea (Schw. ex Fr.) Mass.
On Castanea dentata (Marsh.) Borkh., Rabun.
11. Ciboria echinophila (Bull. ex Fr.) Sacc.
On Castanea mollissima Bl., Clarke.
12. Dasyscypha acerina (Cke. & Ell.) Cash
On Acer rubrum L., Rabun.

13. Dasyscypha albopileata (Cke.) Sacc.
On *Magnolia virginiana* L., Washington
14. Dasyscypha ellisiana (Rehm) Sacc.
On *Pinus caribaea* Mor., McIntosh; *P. echinata* Mill.,
P. jeffreyi Murr., Clarke; *P. palustris* Mill., Glynn; *P. strobus* L.,
P. taeda L., Clarke.
15. Dasyscypha nivea (Hedw. f. ex Fr.) Sacc.
On *Leucothoe catesbaei* (Walt.) Gray, Lumpkin; *Oxydendrum*
arboreum (L.) DC., herbaceous stems, Clarke.
16. Dasyscypha pulveracea (Alb. & Schw. ex Fr.) v. Höhn.
On *Melia azedarach* L., Clarke; *Quercus maxima* (Marsh.).
Ashe, Clarke; *Ulmus serotina* Sarg., Clarke.
17. Dasyscypha sp.
On *Andropogon virginicus* L., Clarke
18. Godronia rugosa Ell. & Ev.
On *Oxydendrum arboreum* (L.) DC., Clarke, Elbert, Hall,
Lincoln, Morgan.
19. Godronia sp.
On *Ostrya virginiana* (Mill.) K. Koch, Clarke
20. Helotium citrinum Hedw. ex Fr.
On log, Clarke, Rabun.
21. Helotium sp.
On *Solidago altissima* L., Clarke.
22. Ionomidotis fulvo-tingens (Berk. & Curt.) Cash
On *Quercus alba* L., Clarke.
23. Monilinia azaleae Honey
On *Azalea canescens* Michx., Clarke
24. Pezizella minuta Dearn
On *Pinus taeda* L., Gilmer
25. Phaeobulgaria inquinans (Pers. ex Fr.) Nannf.
On *Quercus* sp., Catoosa, Clarke.
26. Phialea dearnessii Ell. & Ev.
On *Steironema ciliatum* (L.) Raf., Clarke.
27. Phialea gemmarum (Boud.) Sacc.
On *Populus deltoides* Marsh., Clarke.
28. Phialea phyllophila (Desm.) Gill. f. fagicola Sacc.
On *Fagus grandifolia* Ehrh., Clarke.

29. Phialea scutula (Pers. ex Fr.) Gill.
On *Impatiens biflora* Walt., Clarke.
30. Scleroderris arundinariae Atk.
On *Arundinaria tecta* (Walt.) Muhl., Clarke.
31. Scleroderris crypta (Cke.) Sacc.
On *Azalea canescens* Michx., Clarke.
32. Sclerotinia carunculoides Sieg. & Jenkins
On *Morus rubra* L., Appling, Lanier, Tift, Webster.
33. Sclerotinia fructicola (Wint.) Rehm.
On *Prunus angustifolia* Marsh., *P. avium* L., *P. cerasus* L.,
P. domestica L., *P. persica* (L.) Stokes, *P. umbellata* Ell., Clarke.
34. Sclerotinia sclerotiorum (Lib.) Mass.
On *Brassica oleracea* L. var. *acephala* DC., *B. oleracea* var.
capitata L., *Daucus carota* L. var. *sativa* DC., Clarke; *Lactuca sativa* L.,
Clarke, Glynn.
35. Sclerotinia seaveri Rehm
On *Prunus serotina* Ehrh., Chatham, Clarke, Peach.
36. Velutaria rufo-olivacea (Alb. & Schw. ex Fr.) Fckl.
On *Liquidambar styraciflua* L., Clarke.

5. Patellariaceae.

1. Agyrium sp.
On wood, Rabun.
2. Angelina rufescens (Schw. ex Fr.) Duby
On *Liriodendron tulipifera* L., Clarke; *Quercus* sp.,
Clarke.
3. Hysteropatella prostii (Duby) Rehm
On *Ulmus alata* Michx., Clarke; *U. americana* L., Hart,
U. serotina Sarg., Clarke.
4. Karschia lignyota (Fr.) Sacc.
On *Juniperus virginiana* L., *Pinus echinata* Mill., Clarke.
5. Karschia stygia (Berk. & Curt.) Mass.
On *Liriodendron tulipifera* L., Clarke, Rabun; *Myrica*
carolinensis Mill., Pierce.
6. Karschia sp.
On *Pinus echinata* Mill., Clarke.

7. Lecanidion atratum (Hedw. ex Fr.) Endl.
On Liriodendron tulipifera L., Clarke.
8. Lecanidion clavisporum (Berk. & Br.) Sacc.
On Crataegus viridis L., Oglethorpe; Liriodendron tulipifera L., Oxydendrum arboreum (L.) DC., Quercus sp., Clarke.
9. Lecanidion fuscoatrum Rehm
On Quercus nigra L., Q. rubra L., Clarke.
10. Lecanidion sp.
On Oxydendrum arboreum (L.) DC., DeKalb
11. Tryblidiella rufula (Spreng. ex Fr.) Sacc.
On Ficus carica L., Chatham; Hibiscus syriacus L., Clarke; Morus sp., McIntosh; Nyssa sylvatica Marsh., Colquitt; Oxydendrum arboreum (L.) DC., Clarke; Platanus occidentalis L., Quercus nigra L., Rhus glabra L., Clarke; R. toxicodendron L., Clarke; Rhus sp., McIntosh; on wood, Chatham, Thomas.

6. Geoglossaceae

1. Geoglossum nigritum Cke.
On soil in woods, Rabun.
2. Gloeoglossum difforme (Fr.) Durand
In pine woods, Chatham, Rabun.
3. Leotia chlorocephala Schw. ex Fr.
In pine woods, Clarke.
4. Leotia lubrica Scop. ex Fr.
In mixed woods, Clarke, Rabun.
5. Leotia viscosa Fr.
In woods, Rabun.
6. Microglossum olivaceum (Pers. ex Fr.) Gill.
In woods, Clarke.
7. Microglossum viride (Schrad. ex Fr.) Gill.
In woods, Clarke.
8. Mitrula paludosa Fr.
In swamp on leaves, Clarke.
9. Trichoglossum hirsutum (Pers. ex Fr.) Boud.
On soil, woods, Clarke, Hall, Rabun.
10. Trichoglossum walteri (Berk.) Durand
In pine woods, Rabun.

IV. HYSTERIALES1. Hysteriaceae

1. Dichaena strumosa Fr.
On *Quercus nigra* L., Clarke, Glynn.
2. Gloniopsis ellisii Cash
On *Smilax laurifolia* L., *S. rotundifolia* L., Clarke.
3. Gloniopsis insignis (Cke. & Hark.) Berl. & Vogl.
On *Lepedeza virginica* (L.) Britt., Clarke.
4. Gloniopsis verbasci (Schw.) Rehm.
On *Berchemia scandens* (Hill) Trel., Wilkinson.
5. Glonium abbreviatum (Schw.) Lohm.
On *Quercus* sp., Clarke.
6. Glonium clavisporum Seav.
On *Vitis rotundifolia* Michx., Clarke.
7. Glonium curtisii (Duby) Lohm.
On *Berchemia scandens* (Hill) Trel., Wilkinson; *Carpinus caroliniana* Walt., *Castanea pumila* (L.) Mill., Clarke; *Cyrilla racemiflora* L., Pierce; *Quercus nigra* L., *Smilax laurifolia* L., *Vaccinium elliottii* Chapm., *Vitis rotundifolia* Michx., Clarke.
8. Glonium lineare (Fr.) DeNot.
On *Quercus nigra* L., *Quercus* sp., Clarke.
9. Glonium simulans Ger.
On *Quercus* sp., Rabun.
10. Glonium stellatum Muhl. ex Fr.
On *Quercus alba* L., Clarke; *Quercus* sp., Hall, Rabun;
on log, Oconee.
11. Glonium sp.
On *Fraxinus pennsylvanica* Marsh., Clarke.
12. Glonium sp.
On *Viburnum orientale* Pall., Clarke.
13. Hysterium angustatum Alb. & Schw.
On *Diatrype stigma* Hoffm. ex Fr., Clarke; *Vaccinium arboreum* Marsh., Baldwin, Clarke; *Vaccinium elliottii* Chapm., Clarke.
14. Hysterium macrosperum Pk.
On *Pinus* sp., White.

15. Hysterium magnosporum Ger.
On *Quercus* sp., *Salix nigra* Marsh., Clarke.
16. Hysterium pulicare Pers. ex Fr.
On *Betula nigra* L., Clarke, Greene, Morgan; *Quercus* sp., Clarke.
17. Hysteroglyphium flexuosum (Schw. ex Fr.) Rehm
On *Acer rubrum* L., *Castanea pumila* (L.) Mill., *Quercus coccinea* Muench., *Q. nigra* L., *Salix babylonica* L., Clarke; *Vitis rotundifolia* Michx., Clarke, Glynn.
18. Hysteroglyphium lesquereuxii (Duby) Sacc.
On *Gleditsia triacanthos* L., Clarke.
19. Hysteroglyphium mori (Schw.) Rehm
On *Catalpa bignonioides* Walt., *Morus rubra* L., Clarke; *Pinus* sp., White.
20. Hysteroglyphium nova-caesariense (Ell.) Roum.
On *Pinus echinata* Mill., Clarke.
21. Hysteroglyphium subrugosum (Cke. & Ell.) Sacc.
On *Castanea dentata* (Marsh.) Borkh., Rabun; *Quercus catesbaei* Michx., Laurens; *Q. coccinea* Muench., Rabun.
22. Mytilidion karstenii Sacc.
On *Pinus echinata* Mill., Clarke.
23. Mytilidion tortile (Schw. ex Fr.) Sacc.
On *Juniperus virginiana* L., Clarke.
24. Ostreion americanum Duby
On *Quercus* sp., Clarke.
25. Ostreion sp.
On *Quercus alba* L., Clarke.

V. TUBERALES

1. Elaphomycetaceae

1. Elaphomyces cervinus (L. ex Gray) Schl.,
In soil, Camden.

VI. TAPHRINALES

1. Taphrinaceae

1. Taphrina caerulescens (Mont. & Desm.) Tul.

On *Quercus alba* L., *Q. coccinea* Muench., Clarke;
Q. georgiana Curt., DeKalb; *Q. marilandica* Muench., Clarke, Hall;
Q. maxima (Marsh.) Ashe, White; *Q. montana* Willd., Union; *Q. nigra* L.,
 Clarke, Cobb, Tift; *Q. palustris* Muench., *Q. rubra* L., *Q. velutina* Lam.,
 Clarke; *Q. virginiana* Mill., Charlton.

2. *Taphrina dearnessii* Jenkins
 On *Acer rubrum* L., Clarke, DeKalb.
3. *Taphrina deformans* (Berk.) Tul.
 On *Prunus persica* (L.) Stokes, Clarke.
4. *Taphrina farlowii* Sadeb.
 On *Prunus serotina* Ehrh., Clarke.
5. *Taphrina mirabilis* (Atk.) Gies.
 On *Prunus angustifolia* Marsh., Barks, Clarke; *P. umbellata*
 Ell., Clarke, DeKalb.
6. *Taphrina polystichi* Mix
 On *Polystichum acrostichoides* (Michx.) Schott., Clarke,
 Gwinnett.
7. *Taphrina purpurascens* Robins.
 On *Rhus copallina* L., Clarke, DeKalb, Oconee.
8. *Taphrina robinsoniana* Gies.
 On *Alnus rugosa* (DuRoi) Spreng., Charlton, Clarke, Ogle-
 thorpe.
9. *Taphrina rugosa* Ray
 On *Alnus rugosa* (DuRoi) Spreng., Spalding.
10. *Taphrina sacchari* Jenkins
 On *Acer saccharum* Marsh., Whitfield.
11. *Taphrina virginica* Seym. & Sadeb.
 On *Ostrya virginiana* (Mill.) K. Koch, Clarke.

VII. MICROTHYRIALES

1. *Asterina delitescens* Ell. & Mart.
 On *Persea pubescens* (Pursh) Sarg., Laurens, Washington.
2. *Asterina ilices* Ell.
 On *Ilex opaca* Ait., Glynn.
3. *Asterina pelliculosa* Berk.
 On *Ilex coriacea* (Pursh) Chapm., Charlton.

4. Asterina sabalicola Earle
On *Sabal minor* (Jacq.) Pers., McIntosh.
5. Aulographum arundinariae Cke.
On *Arundinaria tecta* (Walt.) Muhl., Clarke, McIntosh.
6. Clypeolella leemingii (Ell. & Ev.) Theiss.
On *Galax aphylla* L., Rabun.
7. Dimerosporium galactis Ell. & Ev.
On *Galax aphylla* L., Rabun.
8. Dimerosporium tsugae Dearn.
On *Tsuga canadensis* (L.) Carr., Rabun.
9. Englerulaster orbicularis (Berk. & Curt.) v. Höhn.
On *Ilex coriacea* (Pursh) Chapm., *Ilex glabra* (L.) Gray,
Pierce; *Ilex opaca* Ait., Clarke, Washington.
10. Microthyriella cuticulosa (Cke.) v. Höhn.
On *Ilex opaca* Ait., Glynn, Rabun.
11. Microthyrium microscopicum Desm.
On *Magnolia grandifolia* L., *Quercus coccinea* Muench.,
Q. maxima (Marsh.) Ashe, *Q. stellata* Wang., Clarke.
12. Microthyrium sp.
On *Desmodium canadense* (L.) DC., *Lespedeza frutescens*
(L.) Britt., Clarke.
13. Microthyrium sp.
On *Pueraria hirsuta* Schneid., Clarke.
14. Morenoella quercinum (Ell. & Mart.) Theiss.
On *Quercus catesbaei* Michx., Cook; *Q. maxima* (Marsh.)
Ashe, Clarke, Elbert, Hart, Madison; *Q. prinus* L., *Q. velutina* Lam.,
Clarke.
15. Myioconen smilacis (DeNot.) Sacc.
On *Smilax bona-nox* L., Clarke, Union; *Smilax* sp., Clarke.
16. Stigmatea sclerotidea Cke.
On *Arundinaria tecta* (Walt.) Muhl., Oglethorpe, Washington.

C. PYRENO MYCETES

I. LOPHIOSTOMATALES

1. Lophiostomataceae

1. Lophionema crenatum Ell. & Ev.
On *Acer negundo* L., Clarke.

2. Lophionema vermisporum (Ell.) Sacc.
On *Oenothera biennis* L., Clarke.
3. Lophiosphaeria velata (Ell. & Ev.) Lohm.
On *Quercus maxima* (Marsh.) Ashe, *Q. montana* Willd.,
Quercus sp., Clarke.
4. Lophiostoma arundinis (Fr.) Ces. & DeNot.
On *Scirpus georgianus* Harp., Clarke.
5. Lophiostoma caulium (Fr.) Ces. & DeNot.
On *Helianthus microcephalus* T. & G., Clarke; *Hypericum punctatum* Lam., Rabun; *Lespedeza hirta* (L.) Horn., *Monarda punctata* L., *Platanus occidentalis* L., *Prunella vulgaris* L., *Rumex crispus* L., *Sericocarpus asteroides* (L.) BSP., *Solidago altissima* L., *S. serotina* Ait., *Stachys tenuifolia* Willd., *Yucca filamentosa* L., Clarke.
6. Lophiostoma triseptatum Pk.
On wood, Rabun; *Celtis georgiana* Small, Clarke.
7. Lophiostrema vagabundum Sacc.
On *Salix nigra* Marsh., *Solidago caesia* L., Clarke.
8. Lophiostrema sp.
On *Lespedeza virginica* (L.) Britt., Clarke.

II. SPHAERIALES

1. Hypocreaceae

Nectriae

1. Gibberella moricola (DeNot.) Sacc.
On *Morus alba* L., *M. rubra* L., Clarke.
2. Gibberella zeae (Schw.) Petch
On *Holcus halepensis* L., *Zea mays* L., Clarke.
3. Nectria atrofusca (Schw.) Ell. & Ev.
On *Staphylea trifolia* L., Clarke.
4. Nectria cinnabarina Tode ex Fr.
On *Acer rubrum* L., *Amelanchier canadensis* (L.) Medic., *Betula lutea* Michx. f., Union; *Elaeagnus umbellata* Thunb., Clarke; *Gossypium hirsutum* L., Madison; *Hibiscus syriacus* L., *Melia azedarach* L., *Quercus nigra* L., Clarke; *Quercus* sp., Rabun; *Robinia pseudo-acacia* L., *Tilia heterophylla* Vent. var. *michauxii* (Nutt.) Sarg., Clarke.

5. Nectria coccinea Pers. ex Fr.
On *Albizzia julibrissin* Dur., *Carya glabra* (Mill.) Sweet,
Clarke; *Carya* sp., McIntosh.
6. Nectria cucurbitula (Tode ex Fr.) Sacc.
On *Pinus taeda* L., Clarke.
7. Nectria episphaeria Tode ex Fr.
On *Diatrype* sp., McIntosh; on *Valsa* sp., on *Morus rubra* L.,
Clarke, Greene, Pierce.
8. Nectria ochroleuca (Schw.) Curt.
On *Liriodendron tulipifera* L., Clarke.
9. Nectria peziza Tode ex Fr.
On decayed mushroom, log, *Platanus occidentalis* L.,
Clarke.
10. Neocosmospora vasinfecta Erw. Smith
On *Arachis hypogaea* L., Clay; *Crotalaria* sp., Tift.
11. Scolecnectria polythalamia (Berk.) Seav.
On *Fraxinus pennsylvanica* Marsh. var. *lanceolata* (Borkh.)
Sarg., Clarke.
12. Scolecnectria scolecospora (Bref.) Seav.
On *Pinus strobus* L., Clarke, White.
13. Sphaerostilbe coccophila Tul.
On *Fraxinus pennsylvanica* Marsh. var. *lanceolata* (Borkh.)
Sarg., *Quercus nigra* L., *Q. palustris* Muench., Clarke; *Ulmus alata*
Michx., Polk.
14. Thyronectria austro-americana (Speg.) Seeler.
On *Albizzia julibrissin* Dur., Clarke.
15. Thyronectria pyrrhochlora (Auers.) Sacc.
On *Acer saccharum* Marsh., Clarke; *Celtis georgiana* Small,
Clarke; *Diospyros virginiana* L., Jackson; *Rhus glabra* L., Clarke.

Hypocreae

1. Balansia hypoxylon (Pk.) Atk.
On *Danthonia sericea* Nutt., Clarke.
2. Balansia pilulaeformis (Berk. & Curt.) Diehl
On *Paspalum pubescens* Muhl., Chatham.

3. Claviceps paspali Stev. & Hall.
On Paspalum dilatatum Poir., Clarke, Greene; Paspalum sp.,
Clarke.
4. Claviceps tripsaci Stev. & Hall.
On Tripsacum dactyloides L., Ogletthorpe.
5. Cordyceps acicularis Rav. & Berk.
On mayflies, Clarke.
6. Cordyceps capitata (Holmsk. ex Fr.) Lk.
On Elaphomyces cervinus (L. ex Gray) Schl., Camden.
7. Cordyceps militaris (L. ex Fr.) Lk.
On pupa, Clarke, Rabun.
8. Cordyceps sphococcephala (Klotzsch) Mass.
On mature wasp, Clarke.
9. Creopus gelatinosus (Tode ex Fr.) Lk.
On rotten wood, Vitis labrusca L., Rabun.
10. Dothichloë aristidae Atk.
On Aristida stricta Michx., Chatham; A. virgata Trin.,
Hart.
11. Dothichloë atramentosa (Berk. & Curt.) Atk.
On Andropogon virginicus L., Chatham, Clarke.
12. Dothichloë limitata Diehl
On Eragrostis hirsuta (Michx.) Nees, Clarke; E. refracta
(Muhl.) Scribn., Thomas; Sporobolus poiretii (Roem. & Schult.) Hitchc.,
Chatham, Decatur.
13. Dothichloë nigricans (Speg.) Chardon
On Panicum aciculare Desv., P. scoparium Lam., Chatham;
Panicum sp., Charlton, Chatham.
14. Ephichloë typhina (Pers. ex Fr.) Tul.
On Glyceria nervata (Willd.) Trin., Clarke.
15. Hypocrea citrina Pers. ex Fr.
On soil and roots, Clarke.
16. Hypocrea lenta (Tode ex Fr.) Berk. & Br.
On Acer rubrum L., Rabun; Betula nigra L., Carya sp.,
Clarke; Liquidambar styraciflua L., McIntosh; Quercus sp., Clarke.
17. Hypocrea olivacea Cke. & Ell.
On Pinus caribaea Mor., Pierce.

18. Hypocrea patella Cke. & Pk.
On Liriodendron tulipifera L., Clarke.
19. Hypocrea sulphurea (Schw.) Sacc.
On Quercus nigra L., Quercus sp., Clarke.
20. Hypomyces aurantius (Pers. ex Fr.) Tul.
On Polystictus versicolor L. ex Fr., Stereum lobatum Kze. ex Fr., Clarke.
21. Hypomyces chrysospermus (Bull. ex Fr.) Tul.
On Boletus sp., Clarke.
22. Hypomyces lactifluorum (Schw. ex Fr.) Tul.
On Lactarius piperatus Fr., L. volenus Fr., Clarke.
23. Hypomyces rosellus (Alb. & Schw. ex Fr.) Tul.
On Polystictus versicolor L. ex Fr. on Fraxinus pennsylvanica Marsh. var. lanceolata (Borkh.) Sarg., Oglethorpe.

2. Xylariaceae

1. Camarops polyspermum (Mont.) Mill.
On Acer negundo L., Liriodendron tulipifera L., Clarke; Quercus sp., Rabun.
2. Daldinia concentrica (Bolt. ex Fr.) Ces. & DeNot.
On Acer leucoderme Small, Betula nigra L., Clarke; Quercus sp., wood, Rabun.
3. Daldinia vernicosa (Schw.) Ces. & DeNot.
On Sassafras variifolium (Salisb.) Ktze., Clarke; wood, Rabun.
4. Hypoxyylon albocinctum Ell. & Ev.
On old Poria punctata Fr., Clarke.
5. Hypoxyylon argillaceum Pers. ex Berk.
On Fraxinus biltmoreana Beadle, Rabun; Fraxinus pennsylvanica Marsh. var. lanceolata (Borkh.) Sarg., Clarke.
6. Hypoxyylon atropunctatum (Schw. ex Fr.) Cke.
On Acer rubrum L., Fagus grandifolia Ehrh., Ostrya virginiana (Mill.) K. Koch, Quercus alba L., Clarke; Q. coccinea Muench., Rabun; Q. maxima (Marsh.) Ashe, Clarke; Q. nigra L., Bullock, Clarke; Q. velutina Lam., Quercus sp., Clarke, Greene, Thomas.
7. Hypoxyylon cohaerens Pers. ex Fr.
On Fagus grandifolia Ehrh., Catoosa, Clarke, Rabun, Union.

8. Hypoxylon croceum Mill.
On *Liriodendron tulipifera* L., *Quercus* sp., Rabun.
9. Hypoxylon croceoplum Berk. & Curt.
On *Acer rubrum* L., Rabun; *Carya* sp., *Quercus nigra* L., Clarke; *Quercus* sp., Rabun.
10. Hypoxylon culmorum Cke.
On *Arundinaria tecta* (Walt.) Muhl., Chatham, McIntosh, Morgan.
11. Hypoxylon deustum (Hoffm. ex Fr.) Grev.
On *Fagus grandifolia* Ehrh., Clarke, Union; *Nyssa sylvatica* Marsh., Pierce; *Quercus maxima* (Marsh.) Ashe, Clarke; *Quercus* sp., Bullock, Rabun.
12. Hypoxylon epiphaeum Berk. & Curt.
On *Magnolia virginiana* L., Camden, Dooly, Thomas.
13. Hypoxylon fragiforme (Pers. ex Fr.) Kickx.
On *Fagus grandifolia* Ehrh., Catoosa, Clarke, Rabun.
14. Hypoxylon fuscum Pers. ex Fr.
On *Alnus rugosa* (DuRoi) Spreng., Clarke, Jackson, Rabun; *Betula nigra* L., Clarke, Stewart; *Castanea dentata* (Marsh.) Borkh., Clarke, Rabun; *Fraxinus biltmoreana* Beadle, Rabun.
15. Hypoxylon glomeratum Cke.
On *Acer negundo* L., Clarke; *Fraxinus pennsylvanica* Marsh var. *lanceolata* (Borkh.) Sarg., Thomas; *Quercus* sp., Clarke, Rabun, Thomas.
16. Hypoxylon grandineum (Berk. & Rav.) Mill.
On *Quercus* sp., Clarke, Rabun.
17. Hypoxylon howeianum Pk.
On *Betula nigra* L., Clarke; *Castanea dentata* (Marsh.) Borkh., *Fagus grandifolia* Ehrh., *Oxydendrum arboreum* (L.) DC., Rabun; *Quercus alba* L., Clarke; *Q. coccinea* Muench., Rabun; *Q. maxima* (Marsh.) Ashe, Clarke, Rabun; *Q. nigra* L., Chatham; *Quercus* sp., Clarke.
18. Hypoxylon hypophlaeum (Berk. & Rav.) Mill.
On *Alnus rugosa* (DuRoi) Spreng., Thomas; *Baccharis halimifolia* L., Pierce; *Carpinus caroliniana* Walt., Clarke, Jackson; *Cercis canadensis* L., *Fraxinus pennsylvanica* Marsh. var. *lanceolata* (Borkh.) Sarg., *Liriodendron tulipifera* L., Clarke; *Magnolia virginiana* L., Bullock; *Ostrya virginiana* (Mill.) K. Koch, Clarke; *Persea pubescens* (Pursh) Sarg., McIntosh; *Quercus* sp., *Vitis labrusca* L., Clarke.

19. Hypoxylon illitum (Schw.) Curt.
On *Carya* sp., Clarke; *Fagus grandifolia* Ehrh., Union; *Liquidambar styraciflua* L., *Platanus occidentalis* L., Clarke, Rabun, Union; *Quercus alba* L., *Q. virginiana* Mill., Chatham; *Quercus* sp., Clarke.
20. Hypoxylon maculum (Schw. ex Cke.) Mill.
On *Quercus nigra* L., Clarke, Thomas.
21. Hypoxylon malleolus Berk. & Rav.
On *Quercus virginiana* Mill., Chatham, Glynn.
22. Hypoxylon mediterraneum (DeNot.) Mill.
On *Diospyros virginiana* L., DeKalb; *Fagus grandifolia* Ehrh., Union; *Paulownia tomentosa* (Thunb.) Steud., Clarke; *Quercus alba* L., Clarke, DeKalb, Union; *Q. georgiana* Curt., DeKalb; *Q. maxima* (Marsh.) Ashe, Clarke; *Q. montana* Willd., DeKalb; *Q. nigra* L., Bullock, Chatham, Clarke; *Q. rubra* L., Clarke; *Quercus* sp., Clarke, Morgan.
23. Hypoxylon microplacum (Berk. & Curt.) Mill.
On *Magnolia virginiana* L., Chatham, McIntosh; *Persea pubescens* (Pursh) Sarg., Pierce; *Persea* sp., McIntosh; *Sassafras variifolium* (Salisb.) Ktze., Chatham, Clarke, Rabun, Union.
24. Hypoxylon notatum Berk. & Curt.
On *Quercus coccinea* Muench., Rabun; *Q. nigra* L., Bullock, Clarke, Thomas.
25. Hypoxylon papillatum Ell. & Ev.
On *Betula nigra* L., Clarke; *Carya alba* (L.) K. Koch, Rabun; *Quercus montana* Willd., Clarke.
26. Hypoxylon punctulatum (Berk. & Rav.) Cke.
On *Castanea dentata* (Marsh.) Borkh., Rabun; *Halesia carolina* L., Clarke; *Quercus alba* L., Clarke, Rabun, Union; *Q. maxima* (Marsh.) Ashe, Clarke; *Q. nigra* L., Bullock, Chatham, Clarke; *Q. velutina* Lam., Clarke; *Q. virginiana* Mill., Chatham, McIntosh.
27. Hypoxylon regale Morg.
On *Quercus* sp., Clarke.
28. Hypoxylon regale Morg. var. macrospora Mill.
On *Fagus grandifolia* Ehrh., *Quercus alba* L., Rabun; *Q. montana* Willd., Clarke, Rabun; *Q. velutina* Lam., Rabun; *Quercus* sp., Clarke, Rabun.
29. Hypoxylon rubiginosum Pers. ex Fr.
On *Acer rubrum* L., Rabun, Union; *Aesculus georgiana* Sarg., Clarke; *Alnus rugosa* (DuRoi) Spreng., Clarke, Morgan, Rabun; *Arundinaria tecta* (Walt.) Muhl., Clarke, McIntosh; *Benzoin aestivale* (L.) Nees, Clarke, Union; *Betula nigra* L., Thomas; *Carpinus caroliniana* Walt., Clarke, Jackson; *Carya glabra* (Mill.) Sweet, Clarke; *Carya* sp., Rabun;

Castanea dentata (Marsh.) Borkh., Union; *C. pumila* (L.) Mill., *Catalpa bignonioides* Walt., *Celtis georgiana* Small, Clarke; *Cercis canadensis* L., *Cinnamomum camphora* Nees & Eberm., Thomas; *Cliftonia monophylla* (Lam.) Sarg., Pierce; *Cornus florida* L., Clarke, Union; *Crataegus spathulata* Michx., Clarke; *Fagus grandifolia* Ehrh., Clarke, Rabun, Union; *Fraxinus pennsylvanica* Marsh. var. *lanceolata* (Borkh.) Sarg., Clarke, Union; *Juglans nigra* L., *Ligustrum vulgare* L., Clarke; *Magnolia virginiana* L., Camden; *Myrica cerifera* L., Glynn; *Nyssa sylvatica* Marsh., *Ostrya virginiana* (Mill.) K. Koch, *Paulownia tomentosa* (Thunb.) Steud., *Platanus occidentalis* L., *Populus nigra* L., Clarke; *Prunus serotina* Ehrh., Thomas; *P. umbellata* Ell., Clarke; *Pyrus communis* L., Thomas; *Quercus maxima* (Marsh.) Ashe, Union; *Q. nigra* L., Chatham, Clarke; *Quercus* sp., Clarke, Rabun; *Rhododendron maximum* L., *Rhus copallina* L., Union; *R. glabra* L., *R. toxicodendron* L., *Salix alba* L., *Sambucus canadensis* L., *Viburnum rufidulum* Raf., Clarke.

30. *Hypoxylon rumpens* (Cke.) Mill.

On *Crataegus spathulata* Michx., Clarke, Oglethorpe; *Crataegus viridis* L., Oglethorpe.

31. *Hypoxylon sassafras* (Schw. ex Fr.) Curt.

On *Magnolia virginiana* L., McIntosh; *Persea pubescens* (Pursh) Sarg., Glynn, Pierce; *Persea* sp., McIntosh; *Sassafras variifolium* (Salisb.) Ktze., Rabun, Thomas, Union.

32. *Hypoxylon sclerophaeum* Berk. & Curt.

On *Liquidambar styraciflua* L., Oglethorpe; *Sassafras variifolium* (Salisb.) Ktze., Clarke.

33. *Hypoxylon serpens* Pers. ex Fr.

On *Acer rubrum* L., Rabun; *Carya* sp., Clarke; *Fagus grandifolia* Ehrh., Rabun; *Liriodendron tulipifera* L., Clarke; *Quercus montana* Willd., Clarke, Union; *Q. prinus* L., Bullock, Thomas; *Q. stellata* Wang., Clarke; *Quercus* sp., Thomas; *Rhododendron maximum* L., Union.

34. *Hypoxylon serpens* Pers. ex Fr. var. *macrospora* Mill.

On *Prunus umbellata* Ell., *Quercus nigra* L., Clarke; wood, Oglethorpe.

35. *Hypoxylon stygium* (Lév.) Sacc.

On *Fraxinus* sp., Thomas; *Myrica* sp., McIntosh; *Persea pubescens* (Pursh) Sarg., Glynn; *Quercus nigra* L., Clarke; *Quercus* sp., Chatham.

36. *Hypoxylon tinctor* (Berk.) Cke.

On *Acer floridanum* (Chapm.) Pax., Pierce; *A. leucoderme* Small, *A. negundo* L., Clarke; *A. rubrum* L., Clarke, Glynn, Rabun; *Carpinus caroliniana* Walt., Clarke; *Fraxinus* sp., Morgan; *Magnolia virginiana* L., Thomas; *Nyssa* sp., Morgan; *Platanus occidentalis* L., Clarke; *Quercus nigra* L., Bullock, Thomas; *Quercus* sp., Camden, Clarke; *Vitis rotundifolia* Michx., Clarke.

37. Hypoxylon truncatum (Schw. ex Fr.) Mill.

On *Acer rubrum* L., *Betula nigra* L., *Cercis canadensis* L., Clarke; *Fagus grandifolia* Ehrh., Clarke, Union; *Magnolia virginiana* L., Thomas; *Myrica cerifera* L., Glynn; *Quercus alba* L., Clarke, Greene, McIntosh, Rabun, Union; *Q. coccinea* Muench., Union; *Q. maxima* (Marsh.) Ashe, Clarke, DeKalb, Rabun; *Q. montana* Willd., Rabun; *Q. nigra* L., Bullock, Chatham, Clarke, Glynn, McIntosh; *Q. stellata* Wang., *Q. velutina* Lam., Clarke; *Q. virginiana* Mill., Camden, Chatham, Glynn; *Quercus* sp., Clarke, McIntosh, Rabun, Thomas.

38. Nummularia broomeiana (Berk. & Curt.) Mill.

On *Fraxinus pennsylvanica* Marsh. var. *lanceolata* (Borkh.) Sarg., Clarke.

39. Nummularia discincola (Schw. ex Fr.) Cke.

On *Amelanchier canadensis* (L.) Medic., *Carya alba* (L.) K. Koch, Clarke; *Malus pumila* Mill., Catoosa, Rabun.

40. Nummularia sp.

On *Quercus alba* L., Clarke, Rabun.

41. Penzigia frustulosa (Berk. & Curt.) Mill.

On *Salix nigra* Marsh., Clarke; wood, Bullock.

42. Poronia oedipus Mont.

On horse dung, Clarke.

43. Rosellinia aquila (Fr.) DeNot.

On *Berchemia scandens* (Hill) Trel., Wilkinson; *Carpinus caroliniana* Walt., *Cornus florida* L., Clarke; *Fraxinus* sp., Thomas; *Magnolia virginiana* L., Chatham; *Quercus alba* L., Rabun; *quercus* sp., McIntosh; *Salix alba* L., Clarke; *Vitis rotundifolia* Michx., Glynn.

44. Rosellinia glandiformis Ell. & Ev.

On *Acer negundo* L., Clarke; *quercus maxima* (Marsh.) Ashe, Clarke; *Quercus* sp., Rabun, White.

45. Rosellinia pulveracea (Ehrh. ex Fr.) Fekl.

On *Magnolia cordata* Michx., Oglethorpe; *Platanus occidentalis* L., Clarke; *Quercus coccinea* Muench., Banks.

46. Rosellinia subiculata (Schw. ex Fr.) Sacc.

On *Castanea dentata* (Marsh.) Borkh., Union; *Liriodendron tulipifera* L., Clarke, White; *Quercus virginiana* Mill., Chatham; *quercus* sp., Rabun; wood, Bullock, Clarke, McIntosh.

47. Rosellinia trichota (Cke. & Ell.) Ell. & Ev.

On *Pinus taeda* L., Oglethorpe

48. Rosellinia ulmaticola (Berk. & Curt.) Sacc.
On wood, Oglethorpe.
49. Xylaria arbuscula Sacc.
On *Cephalanthus occidentalis* L., Clarke.
50. Xylaria bulbosa (Pers. ex Fr.) Berk. & Br.
On *Quercus* sp., Clarke.
51. Xylaria cornu-danae (Schw.) Berk.
On *Quercus* sp., Rabun.
52. Xylaria cubensis Mont.
On *Acer rubrum* L., Rabun; *Quercus* sp., Bullock, Clarke, Hall,
Rabun.
53. Xylaria filiformis Alb. & Schw. ex Fr.
On *Ilex opaca* Ait., Rabun.
54. Xylaria herculea (Miquel) Cke.
On *Quercus* sp., Clarke.
55. Xylaria hypoxylon (L. ex Fr.) Grev.
On *Castanea dentata* (Marsh.) Borkh., *Quercus coccinea*
Muench., Rabun; *Quercus* sp., Bullock, Clarke.
56. Xylaria ianthino-velutina Mont.
On *Magnolia grandiflora* L., Clarke.
57. Xylaria mali Fromme
On *Malus pumila* Mill., Walker.
58. Xylaria multiplex (Kze. & Fr.) Berk. & Curt.
On *Quercus cinerea* Michx., Laurens.
59. Xylaria oxyacanthae Tul.
On *Carya alba* (L.) K. Koch, Clarke.
60. Xylaria persicaria (Schw. ex Fr.) Curt.
On *Liquidambar styraciflua* L., Clarke.

3. Allantosphaeriaceae

1. Acanthorhynchus sp.

On *Sabal minor* (Jacq.) Pers., Wilkinson; *Sabal palmetto*
(Walt.) Todd, Glynn.

2. Anthostoma dryophilum (Curr.) Sacc.

On *Castanea dentata* (Marsh.) Borkh., Rabun

3. Anthostoma gastrinum (Fr.) Sacc.
On *Quercus alba* L., Hall; *Q. montana* Willd., Clarke; *Q. nigra* L., Clarke, Deely.
4. Anthostoma saprophilum Ell. & Ev.
On *Acer negundo* L., Clarke.
5. Anthostomella leucobasis (Ell. & Mart.) Sacc.
On *Sabal minor* (Jacq.) Pers., Glynn; *S. palmetto* (Walt.) Todd, Pierce.
6. Anthostomella minor Ell. & Ev.
On *Sabal minor* (Jacq.) Pers., McIntosh, Ware; *S. palmetto* (Walt.) Todd, McIntosh, Pierce.
7. Anthostomella sepelibilis (Berk. & Curt.) Sacc.
On *Smilax bona-nox* L., Clarke; *S. laurifolia* L., Clarke, Morgan, Pierce; *Smilax* sp., Clarke.
8. Anthostomella sp.
On *Aster ericoides* L. var. *platyphyllus* T. & G., *Solidago altissima* L., *S. odora* Ait., *Solidago* sp., Clarke.
9. Anthostomella sp.
On *Liriodendron tulipifera* L., Clarke.
10. Anthostomella sp.
On *Smilax laurifolia* L., Burke.
11. Calosphaeria barbirostris (Duf. ex Fr.) Ell. & Ev.
On *Quercus alba* L., Clarke; *Quercus* sp., Rabun.
12. Calosphaeria sp.
On *Quercus prinus* L., Clarke
13. Diatrype asterostoma Berk. & Curt.
On *Magnolia virginiana* L., Camden, McDuffie; *Nyssa biflora* Walt., Washington; *N. sylvatica* Marsh., Clarke, Glynn, Laurens, Pierce.
14. Diatrype platystoma (Schw. ex Fr.) Curt.
On *Acer rubrum* L., Union; *Carpinus caroliniana* Walt., Jackson.
15. Diatrype stigma Hoffm. ex Fr.
On *Acer rubrum* L., Rabun; *Quercus alba* L., Union; *Q. coccinea* Muench., Rabun, Union; *Q. montana* Willd., DeKalb; *Q. nigra* L., Clarke; *Quercus* sp., Barrow, Bullock, Greene, McIntosh.
16. Diatrype tremellophora Ell.
On *Magnolia virginiana* L., Glynn.

17. Diatrypé virescens (Schw.) Curt
On *Fagus grandifolia* Ehrh., Catoosa, Clarke, Greene, Rabun, Union.
18. Diatrypella discoidea Cke. & Pk.
On *Betula lutea* Michx. f., Union; *Carpinus caroliniana* Walt., *Quercus* sp., Clarke.
19. Diatrypella discoidea Cke. & Pk. v. alni Cke.
On *Alnus rugosa* (DuRoi) Spreng., Clarke, Rabun.
20. Diatrypella favacea (Fr.) Nits.
On *Acer negundo* L., Clarke; *A. rubrum* L., Clarke, McDuffie, Rabun; *Alnus rugosa* (DuRoi) Spreng., Clarke; *Berchemia scandens* (Hill) Trel., Glynn; *Betula nigra* L., Clarke, Morgan; *Broussonetia papyrifera* (L.) Vent., *Castanea mollissima* Bl., Clarke; *Cephalanthus occidentalis* L., Glynn; *Crataegus viridis* L., Oglethorpe; *Cyrilla racemiflora* L., Jenkins; *Eupatrium capillifolium* (Lam.) Small, *Fagus grandifolia* Ehrh., *Fraxinus americana* L., *F. pennsylvanica* Marsh. var. *lanceolata* (Borkh.) Sarg., *Hibiscus syriacus* L., Clarke; *Ilex cassine* L., Colquitt; *Juniperus virginiana* L., Glynn; *Lonicera morrowii* A. Gray, *Maclura pomifera* (Raf.) Schn., *Magnolia soulangeana* Soul., Clarke; *Magnolia virginiana* L., McDuffie; *Morus rubra* L., Pierce; *Nyssa sylvatica* Marsh., Clarke, Glynn; *Prunus angustifolia* Marsh., Dooly; *Quercus nigra* L., Clarke, Glynn; *Quercus stellata* Wang., *Tilia heterophylla* Vent. var. *michauxii* (Nutt.) Sarg., *Ulmus americana* L., *Ulmus pumila* L., Clarke.
21. Diatrypella fraxini Ell. & Ev.
On *Fraxinus pennsylvanica* Marsh. var. *lanceolata* (Borkh.) Sarg., Greene.
22. Diatrypella prominens Howe.
On *Platanus occidentalis* L., Clarke, Oglethorpe.
23. Diatrypella quercina (Pers. ex Fr.) Nits.
On *Acer rubrum* L., Clarke; *Berchemia scandens* (Hill.) Trel., Washington; *Crataegus spathulata* Michx., Clarke; *C. viridis* L., Oglethorpe; *Fraxinus americana* L., Clarke; *Ilex opaca* Ait., Clarke, Washington; *Magnolia virginiana* L., Thomas; *Morus rubra* L., Clarke; *Populus deltoides* Marsh., Oglethorpe; *Quercus prinus* L., *Salix nigra* Marsh., *Tilia heterophylla* Vent. var. *michauxii* (Nutt.) Sarg., Clarke.
24. Diatrypella subfulva (Berk. & Curt.) Sacc.
On *Acer rubrum* L., *Celtis georgiana* Small, *Crataegus crus-galli* L., *Quercus alba* L., *Q. maxima* (Marsh.) Ashe, Clarke; *Ulmus americana* L., Oglethorpe.
25. Endoxyla inusta (Cke.) Ell. & Ev.
On *Juniperus* sp., McIntosh.

26. Eutypa acharii Tul.
On *Cornus florida* L., Rabun.
27. Eutypa lata (Pers. ex Fr.) Tul.
On *Liriodendron tulipifera* L., Clarke.
28. Eutypa spinosa (Pers. ex Fr.) Tul.
On *Quercus* sp., Clarke, Rabun.
29. Eutypa velutina (Wallr.) Sacc.
On *Acer negundo* L., *Morus rubra* L., Clarke.
30. Eutypa sp.
On *Fraxinus americana* L., Clarke.
31. Eutypa sp.
On *Smilax laurifolia* L., Burke.
32. Eutypella berchemiae (Cke.) Sacc.
On *Berchemia scandens* (Hill) Trel., Washington.
33. Eutypella capillata Ell. & Ev.
On *Robinia pseudo-acacia* L., Clarke.
34. Eutypella cerviculata (Fr.) Sacc.
On *Alnus rugosa* (DuRoi) Spreng., Clarke, Rabun; *Prunus serotina* Ehrh., *Quercus velutina* Lam., Clarke.
35. Eutypella constellata (Berk. & Curt.) Berl. & Vogl.
On *Carya glabra* (Mill.) Sweet, Clarke.
36. Eutypella fraxinicola (Cke. & Pk.) Sacc.
On *Acer leucoderme* Small, *A. negundo* L., *A. rubrum* L., *Aesculus georgiana* Sarg., Clarke; *A. octandra* Marsh., Oglethorpe; *A. pavia* L., Washington; *Amelanchier canadensis* (L.) Medic., *Azalea canescens* Michx., *Carya alba* (L.) K. Koch, *C. glabra* (Mill.) Sweet, Clarke; *C. laciniosa* (Michx. f.) Loud., Greene; *C. pecan* (Marsh.) Engl. & Graebn., *Catalpa bignonioides* Walt., *Cercis canadensis* L., Clarke; *Diospyros virginiana* L., Glynn; *Elaeagnus umbellata* Thunb., *Fagus grandifolia* Ehrh., *Fraxinus americana* L., *F. pennsylvanica* Marsh. var. *lanceolata* (Borkh.) Sarg., *Gleditsia triacanthos* L., Clarke; *Hydrangea arborescens* L., DeKalb; *Ilex opaca* Ait., *Lonicera japonica* Thunb., Clarke; *Magnolia grandiflora* L., Glynn; *Melia azedarach* L., *Morus rubra* L., Clarke; *Nyssa sylvatica* Marsh., Colquitt; *Rhus glabra* L., *Rosa* sp., *Salix nigra* Marsh., *Staphylea trifolia* L., *Tilia heterophylla* Vent. var. *michauxii* (Nutt.) Sarg., Clarke; *Ulmus fulva* Michx., Oglethorpe; *Ulmus pumila* L., Clarke; *Viburnum semitomentosum* (Michx.) Rehd., McDuffie; *Vitis rotundifolia* Michx., Clarke.

37. Eutypella microcarpa Ell. & Ev.
On *Ailanthus altissima* (Mill.) Sw., *Albizia julibrissin* Dur., *Broussonetia papyrifera* (L.) Vent., *Carpinus caroliniana* Walt., *Elaeagnus umbellata* Thunb., *Melia azedarach* L., *Morus rubra* L., *Sambucus canadensis* L., Clarke; *Smilax laurifolia* L., McIntosh.
38. Eutypella platani (Schw.) Sacc.
On *Platanus occidentalis* L., Clarke.
39. Eutypella rugiella (Cke. & Ell.) Sacc.
On *Acer rubrum* L., Clarke.
40. Eutypella scoparia (Schw.) Ell. & Ev.
On *Ulmus parvifolia* Jacq., Clarke.
41. Eutypella sepulta (Berk. & Curt.) Dearn.
On *Smilax glauca* Walt., *Smilax laurifolia* L., Clarke; *Smilax rotundifolia* L., McDuffie; *Smilax* sp., Clarke.
42. Eutypella tumida (Ell. & Ev.) Weh.
On *Robinia pseudo-acacia* L., Rabun; *Ulmus americana* L., Clarke.
43. Eutypella venusta (Ell.) Sacc.
On *Robinia pseudo-acacia* L., Rabun.
44. Eutypella sp.
On *Fraxinus pennsylvanica* Marsh. var. *lanceolata* (Borkh.) Sarg., Clarke.
45. Quaternaria personii Tul.
On *Liriodendron tulipifera* L., Clarke.

4. Diaporthaceae

1. Apioportha phomaspora (Cke. & Ell.) Weh.
On *Myrica cerifera* L., Jenkins.
2. Apioportha vepris (DeLacr.) Weh.
On *Rubus argutus* Lk., Clarke.
3. Calospora sp.
On *Liriodendron tulipifera* L., Clarke.
4. Calospora sp.
On *Quercus prinus* L., Clarke.
5. Cryptodiaportha aculeans (Schw.) Weh.
On *Rhus copallina* L., Clarke, Columbia, Greene; *R. glabra* L., Clarke; *Rhus* sp., McIntosh.

6. Cryptodiaporthe myinda (Cke. & Ell.) Weh.
On *Acer rubrum* L., Jenkins, Rabun.
7. Cryptodiaporthe paulula (Cke. & Ell.) Weh.
On *Nyssa sylvatica* Marsh., Clarke.
8. Cryptodiaporthe salicina (Curr.) Weh.
On *Salix nigra* Marsh., Clarke.
9. Cryptodiaporthe sp.
On *Cercis canadensis* L., Clarke.
10. Cryptospora cinctula (Cke. & Pk.) Sacc.
On *Castanea pumila* (L.) Mill., Clarke.
11. Cryptospora femoralis (Pk.) Sacc.
On *Alnus rugosa* (DuRoi) Spreng., Clarke.
12. Cryptospora tomentella (Pk.) Berl. & Vogl.
On *Betula nigra* L., Clarke.
13. Cryptosporella aurea (Fckl.) Sacc.
On *Liquidambar styraciflua* L., McDuffie.
14. Cryptosporella umbrina (Jenkins) Jenkins & Weh.
On *Rosa* sp., Fulton.
15. Diaporthe amorphae Ell. & Ev.
On *Amorpha fruticosa* L., Clarke.
16. Diaporthe ampelopsidis (Ell.) Ell. & Ev.
On *Pseodera quinquefolia* (L.) Greene, Dooly.
17. Diaporthe araliae Ell. & Ev.
On *Aralia spinosa* L., Columbia, DeKalb.

18. Diaporthe arctii (Lasch) Nits.
On *Agave virginica* L., Oglethorpe; *Ambrosia artemisiifolia* L., *A. trifida* L., *Asclepias variegata* L., *Cassia chamaecrista* L., *Chelone glabra* L., *Chenopodium ambrosioides* L. var. *anthelminticum* (L.) Gray, *Chrysanthemum leucanthemum* L., *Cirsium altissimum* (L.) Spreng., *Daucus carota* L., *Decumaria barbara* L., *Elephantopus tomentosus* L., *Eupatorium capillifolium* (Lam.) Small, *E. hyssopifolium* L., Clarke; *E. maculatum* Just., Lumpkin; *E. purpureum* L., *E. rotundifolium* L., *Euphorbia corollata* L., *Firmiana platanifolia* (L.) R. Br., *Gerardia flava* L., *Helianthus atrorubens* L., *H. divaricatus* L., *H. microcephalus* T. & G., *Hibiscus esculentus* L., *Lactuca canadensis* L., *Lespedeza virginica* (L.) Britt., *Ligusticum canadensis* (L.) Britt., Clarke; *Magnolia tripetala* L., Oglethorpe; *Monarda punctata* L., *Oenothera biennis* L., *Phaseolus vulgaris* L., *Phytolacca decandra* L., *Platanus occidentalis* L., *Polygonum pennsylvanicum* L., *P. sagittatum* L., *Polymania canadensis* L., *Pycnanthemum*

pycnanthemoides (Leav.) Fern., Rudbeckia laciniata L., Rumex crispus L., Silphium dentatum Ell., S. lapsuum Small, Smallanthus uvedalia (L.) Mack., Solanum melongena L., Sonchus oleraceus L., Verbesina occidentalis (L.) Walt., V. virginica L., Clarke; Vernonia acaulis (Walt.) Gleason, Elbert; Xanthium canadense Mill., Yucca filamentosa L., Clarke.

19. Diaporthe arctii (Lasch) Nits. var.
On Solidago conferta Mill., Clarke.

20. Diaporthe bakeri Weh.
On Carpinus caroliniana Walt., Clarke.

21. Diaporthe batatatis Hart. & Field.
On Ipomoea batatas (L.) Lam., Clarke.

22. Diaporthe dubia Nits.
On Acer leucoderme Small, Clarke.

23. Diaporthe eres Nits.
On Cornus florida L., Clarke; Magnolia virginiana L.,

Pierce.

24. Diaporthe leiphaemia (Fr.) Sacc. var. raveneliana (Thüm. & Rehm) Weh.
On Quercus alba L., Clarke.

25. Diaporthe linearis (Nees ex Fr.) Nits.
On Aster divaricatus L., Lumpkin; A. dumosus L., A. ericoides L. var. platyphyllus T. & G., A. lateriflorus (L.) Britt., A. puniceus L., A. sagittifolius Wed. var. dissitiflorus Burg., A. undulatus L., Sericocarpus asteroides (L.) BSP., Clarke; Solidago altissima L., Clarke, Elbert; S. boottii Hook, S. brachyphylla Chapm., S. erecta Pursh, S. milleriana Mack., S. nemoralis Ait., Clarke; S. odora Ait., Clarke, Stephens; S. serotina Ait., Clarke.

26. Diaporthe megalospora Ell. & Ev.
On Sambucus canadensis L., Clarke.

27. Diaporthe oncostoma (Duby) Fckl.
On Robinia pseudo-acacia L., Clarke, Rabun.

28. Diaporthe oxyspora (Pk.) Sacc.
On Ilex ambigua (Michx.) Chapm., Gwinnett.

29. Diaporthe padi Otth var. patria Weh.
On Aesculus hippocastanum L., Clarke; A. octandra Marsh.,
Oglethorpe.

30. Diaporthe phaseolorum (Cke. & Ell.) Sacc.
On Phaseolus lunatus L., Berrien, Clarke.

31. Diaporthe sociabilis Nits. var. sambuci (Ell. & Ev.) Weh.
On Sambucus canadensis L., Clarke.

32. Diaporthe sociata (Cke. & Ell.) Sacc.
On Benzoin aestivale (L.) Nees, Clarke.

33. Diaporthe tetraptera Ell. & Ev.
On Halesia carolina L., DeKalb.

34. Diaporthe viburni Dearn. & Bisby.
On Viburnum rufidulum Raf., Clarke.

35. Diaporthe sp.
On Maclura pomifera (Raf.) Schn., Clarke.

36. Diaporthe sp.
On Oxydendrum arboreum (L.) DC., Clarke.

37. Diaporthe sp.
On Quercus georgiana Curt., DeKalb.

38. Diaporthe sp.
On Schrankia uncinata Willd., Clarke.

39. Diaporthopsis trinucleata (Niessl) v. Höhn.
On Gnaphalium obtusifolium L., Clarke.

40. Diaporthopsis sp.
On Cassia chamaecrista L., Clarke.

41. Diaporthopsis sp.
On Monarda punctata L., Clarke.

42. Endothia gyrosa Schw. ex Fr.

On Fagus grandifolia Ehrh., Liquidambar formosana Hance, Clarke; L. styraciflua L., Clarke, Oglethorpe; Quercus coccinea Muench., Q. maxima (Marsh.) Ashe, Q. nigra L., Q. palustris Muench., Q. velutina Lam., Clarke; Q. virginiana Mill., Glynn; Quercus sp., McIntosh.

43. Endothia parasitica (Murr.) And. & And.

On Castanea dentata (Marsh.) Borkh., Clarke, Rabun, Union
C. mollissima Bl., C. pumila (L.) Mill., Clarke.

44. Endothia viridistroma Weh.
On Cercis canadensis L., Clarke.

45. Glomerella cingulata (Stonem.) Spauld. & Schrenk.

On Camellia japonica L., Thomas; Ficus carica L., Clarke;
Malus pumila Mill., Clarke, Habersham, Rabun, Union; Pyrus communis L.,
Clarke.

46. Glomerella gossypii Edg.

On *Gossypium hirsutum* L., Barrow, Berrien, Bibb, Brooks, Burke, Calhoun, Carroll, Clarke, Colquitt, Columbia, Cook, Coweta, Crawford, Dodge, Dooly, Early, Franklin, Hart, Irwin, Jackson, Jeff Davis, Jefferson, Lamar, Laurens, Lowndes, Macon, Madison, Marion, Miller, Mitchell, Montgomery, Monroe, Muscogee, Newton, Peach, Pike, Randolph, Rockdale, Seminole, Spalding, Sumter, Talbot, Tattnall, Terrell, Thomas, Tift, Toombs, Wheeler, Whitfield, Worth.

47. Glomerella lindemuthiana Shear

On *Phaseolus vulgaris* L., Clarke, Rabun, Union.

48. Gnomonia dispersa Demaree & Cole

On *Carya pecan* (Marsh.) Engl. & Graebn., Lee, Thomas.

49. Gnomonia magnoliae Ell.

On *Magnolia virginiana* L., Pierce, Richmond, Washington.

50. Gnomonia myricae Cke. & Ell.

On *Myrica carolinensis* Mill., Columbia, Pierce.

51. Gnomonia petiolophila (Pk.) Berl. & Vogl.

On *Acer saccharum* Marsh., Clarke

52. Gnomonia setacea (Pers. ex Fr.) Ces. & DeNot.

On *Alnus rugosa* (DuRoi) Spreng., Clarke, Hart, McDuffie; *Betula nigra* L., Clarke, Greene, Hart, Madison; *Carya alba* (L.) K. Koch, Clarke, Gwinnett, Hall; *C. laciniosa* (Michx. f.) Loud., Greene, Oglethorpe; *C. ovata* (Mill.) K. Koch, *C. pecan* (Marsh.) Engl. & Graebn., Clarke, Pulaski; *Castanea pumila* (L.) Mill., Hall; *Quercus alba* L., Lincoln; *Q. catesbaei* Michx., Baldwin; *Q. macrocarpa* Michx., Clarke; *Q. margaretta* Ashe, Clarke, Richmond; *Q. marilandica* Muench., Lincoln; *Q. maxima* (Marsh.) Ashe, Madison; *Q. montana* Willd., Clarke, DeKalb, Hall, Lincoln, Rabun; *Q. oglethorpensis* Duncan, Oglethorpe; *Q. prinus* L., Clarke, Washington; *Q. pumila* Walt., Tift; *Q. shumardii* Buckl., Oglethorpe; *Q. stellata* Wang., *Q. velutina* Lam., Clarke.

53. Gnomonia ulmea (Schw. ex Fr.) Thüm.

On *Ulmus americana* L., Clarke, Gwinnett, Oglethorpe, Washington.

54. Gnomonia veneta (Sacc. & Speg.) Kleb.

On *Quercus maxima* (Marsh.) Ashe, *Q. stellata* Wang., *Q. velutina* Lam., Hall.

55. Gnomonia sp.

On *Carya alba* (L.) K. Koch, *C. ovalis* (Wang.) Sarg., Clarke.

56. Gnomoniella amoena (Nees) Sacc. var. *petiolorum* (Schw.) Sacc.

On *Liquidambar styraciflua* L., Clarke, Dooly, Elbert, Madison, McIntosh, Walton.

57. Gnomoniella georgiana Thom. & Mill.

On Liquidambar styraciflua L., Clarke, McDuffie; Nyssa biflora Walt., Columbia, Washington; N. sylvatica Marsh., Clarke.

58. Gnomoniella gnomon (Tode ex Fr.) House

On Alnus rugosa (DuRoi) Spreng., Clarke, Elbert, Greene, Hart; Corylus americana Walt., Clarke; Ostrya virginiana (Mill.) K. Koch, Clarke, Greene.

59. Gnomoniella tenella (Ell. & Ev.) Sacc.

On Acer floridanum (Chapm.) Pax., Elbert; A. leucoderme Small, Clarke; A. rubrum L., Clarke, Lincoln, Rabun, Washington; A. saccharum Marsh., Clarke.

60. Gnomoniella tubiformis (Tode ex Fr.) Sacc.

On Alnus rugosa (DuRoi) Spreng., Clarke.

61. Gnomoniella sp.

On Aesculus octandra Marsh., Elbert.

62. Hercospora tiliae Pers. ex Fr. emend Tul.

On Tilia heterophylla Vent. var. michauxii (Nutt.) Sarg., Clarke.

63. Linospora gleditsiae Mill. & Wolf

On Gleditsia triacanthos L., Clarke.

64. Mumiania alni Thom. & Mill.

On Alnus rugosa (DuRoi) Spreng., Clarke.

65. Massariovalsa sudans (Berk. & Curt.) Sacc.

On Acer rubrum L., Clarke; Aesculus octandra Marsh., Oglethorpe; Carya alba (L.) K. Koch, Cornus florida L., Clarke; Nyssa biflora Walt., Washington; Nyssa sylvatica Marsh., Burke, Clarke; Tilia heterophylla Vent. var. michauxii (Nutt.) Sarg., Clarke.

66. Melanconis appendiculata (Otth) Weh.

On Acer rubrum L., Glynn.

67. Melanconis chrysostroma (Fr.) Tul.

On Carpinus caroliniana Walt., Clarke.

68. Melanconis corni Weh.

On Cornus florida L., Clarke.

69. Melanconis decoraensis Ell.

On Betula nigra L., Clarke, Greene.

70. Melanconis hyperopta (Nits.) Weh.

On Carpinus caroliniana Walt., Clarke.

71. Melanconis juglandis (Ell. & Ev.) Graves.
On *Juglans cinerea* L., *J. sieboldiana* Max., Clarke.
72. Melanconis juglandis (Ell. & Ev.) Graves var. caryae Weh.
On *Carya glabra* (Mill.) Sweet, Clarke.
73. Melanconis thelebola (Fr.) Sacc.
On *Alnus rugosa* (DuRoi) Spreng., Clarke, Morgan, Rabun.
74. Ophiodothella leucospila (Berk. & Curt.) Thom. & Mill.
On *Platanus occidentalis* L., Clarke, Washington.
75. Ophiodothella vaccinii Boyd.
On *Polycodium candicans* Small, *P. melanocarpum* (Mohr) Small, *P. neglectum* Small, Clarke; *P. stamineum* (L.) Greene, Rabun; *Vaccinium arboreum* Marsh., Clarke; *Zenobia pulverulenta* (Bartr.) Poll., Lincoln.
76. Ophiodothella sp.
On *Magnolia grandiflora* L., Chatham; *M. virginiana* L., Columbia.
77. Pseudovalsa lanciformis (Fr.) Ces. & DeNot.
On *Betula nigra* L., Clarke.
78. Pseudovalsa sigmoidea (Cke. & Ell.) Sacc.
On *Quercus velutina* Lam., Clarke.
79. Valsa ambiens Pers. ex Fr.
On *Lyonia lucida* (Lam.) K. Koch, Laurens; *Salix nigra* Marsh., Oglethorpe; *Tilia heterophylla* Vent. var. *michauxii* (Nutt.) Sarg., *Ulmus alata* Michx., Clarke.
80. Valsa americana Berk. & Curt.
On *Malus pumila* Mill., Rabun.
81. Valsa ceratophora Tul.
On *Amelanchier canadensis* (L.) Medic., Clarke, *Myrica cerifera* L., Glynn.
82. Valsa chlorodisca Cke. & Ell.
On *Carya* sp., Wilkes.
83. Valsa conspurcata (Schw.) Cke.
On *Liquidambar styraciflua* L., Clarke.
84. Valsa coronata Hoffm. ex Fr.
On *Quercus alba* L., Rabun.

85. Valsa decorticans Fr.

On *Acer rubrum* L., Clarke, Morgan; *Betula nigra* L., Morgan; *Callicarpa americana* L., *Carpinus caroliniana* Walt., *Castanea dentata* (Marsh.) Borkh., *Celtis georgiana* Small, *Crataegus michauxii* Pers., *C. spathulata* Michx., *C. venusta* Beadl., Clarke; *Gossypium hirsutum* L., Madison; *Ilex glabra* (L.) Gray, Jenkins; *Liriodendron tulipifera* L., *Lonicera japonica* Thunb., Clarke; *Lyonia lucida* (Lam.) K. Koch, Glynn; *Nyssa sylvatica* Marsh., *Ostrya virginiana* (Mill.) K. Koch, *Oxydendrum arboreum* (L.) DC., *Prunus persica* (L.) Stokes, Clarke; *Quercus cinerea* Michx., Jenkins; *Q. georgiana* Curt., DeKalb; *Q. maxima* (Marsh.) Ashe, Clarke, Morgan; *Q. rubra* L., Clarke; *Rhus copallina* L., Morgan; *R. glabra* L., Clarke; *R. toxicodendron* L., Jenkins; *Salix nigra* Marsh., Dooly; *Tecoma radicans* (L.) Juss., *Tilia heterophylla* Vent. var. *michauxii* (Nutt.) Sarg., *Vaccinium arboreum* Marsh., *Vitis rotundifolia* Michx., Clarke.

86. Valsa fraxinina Pk.

On *Fraxinus pennsylvanica* Marsh., Clarke; *Fraxinus pennsylvanica* Marsh. var. *lanceolata* (Borkh.) Sarg., Cglethorpe.

87. Valsa leucostoma Pers. ex Fr.

On *Prunus persica* (L.) Stokes, *P. serotina* Ehrh., Clarke.

88. Valsa minutella Pk.

On *Alnus rugosa* (DuRoi) Spreng., Clarke, Dooly; *Betula nigra* L., *Carya pallida* (Ashe) Engl. & Graebn., Clarke.

89. Valsa morigena Berk. & Curt.

On *Morus alba* L., Clarke.

90. Valsa pallida Ell. & Ev.

On *Salix nigra* Marsh., Clarke.

91. Valsa pauperata Cke. & Ell.

On *Acer rubrum* L., Clarke, Rabun; *Populus alba* L., Clarke.

92. Valsa pini Alb. & Schw. ex Fr.

On *Pinus strobus* L., Clarke, Union.

93. Valsaria aethiops (Cke. & Ell.) Sacc.

On *Morus rubra* L., Clarke.

94. Valsaria celtidis (Cke.) Sacc.

On *Celtis georgiana* Small, Clarke.

95. Valsaria exasperans (Gar.) Sacc.

On *Prunus serotina* Ehrh., Clarke.

96. Valsaria gemmata (Berk. & Rav.) Ell. & Ev.

On *Pinus taeda* L., Glynn.

97. Valsaria insitiva (Tode ex Fr.) Ces. & DeNot.

On *Aesculus octandra* Marsh., *Oglethorpe*; *Amorpha fruticosa* L., *Carpinus caroliniana* Walt., *Hibiscus syriacus* L., Clarke; *Magnolia virginiana* L., Glynn; *Quercus alba* L., Rabun; *Quercus prinus* L., Clarke.

98. Valsaria rubricosa (Fr.) Sacc.

On *Acer leucoderme* Small, *A. saccharum* Marsh., *Carpinus caroliniana* Walt., *Carya pallida* (Ashe) Engl. & Graebn., Clarke; *Castanea dentata* (Marsh.) Borkh., Clarke, Rabun; *Liriodendron tulipifera* L., Clarke; *Magnolia virginiana* L., Columbia; *Melia azedarach* L., *Paulownia tomentosa* (Thunb.) Steud., *Quercus alba* L., *Q. maxima* (Marsh.) Ashe, *Q. nigra* L., Clarke.

99. Valsella laschii (Nits.) Sacc.

On *Amelanchier canadensis* (L.) Medic., *Carpinus caroliniana* Walt., *Liquidambar styraciflua* L., Clarke; *Liriodendron tulipifera* L., Morgan.

5. Phyllachoraceae1. Abiospora montagnei Sacc.

On *Andropogon glomeratus* (Walt.) BSP., *Andropogon virginicus* L., *Arundinaria tecta* (Walt.) Muhl., *Cynodon dactylon* (L.) Pers., *Elymus australis* Scribn. & Ball., Clarke; *Erianthus brevibarbis* Michx., Pierce; *Gymnopogon ambiguus* (Michx.) BSP., *Smilax herbacea* L., *Tridens flavus* (L.) Hitch., *Uniola latifolia* Michx., *U. laxa* (L.) BSP., Clarke.

2. Phyllachora andropogonis Karst. & Har.

On *Andropogon virginicus* L., Clarke, Rabun.

3. Phyllachora cornuospora Atk.

On *Panicum agrostoides* Spreng., Clarke.

4. Phyllachora graminis (Pers. ex Fr.) Fckl.

On *Elymus virginicus* L., Clarke.

5. Phyllachora lespedezae (Schw.) Sacc.

On *Lespedeza procumbens* Michx., Rabun; *Lespedeza repens* (L.) Bart., Clarke, Rabun.

6. Phyllachora vulgata Theiss. & Syd.

On *Muhlenbergia schreberi* Gmel., Clarke.

7. Phyllachora sp.

On *Arundinaria tecta* (Walt.) Muhl., Clarke, Madison, McIntosh.

8. Phyllachora sp.

On *Eragrostis hirsuta* (Michx.) Nees, Clarke.

9. Phyllachora sp.

On *Panicum clandestinum* L., *P. commutatum* Schult., *P. sanguineum* Kunth, *P. microcarpon* Muhl., *P. xalapense* HBK., Clarke.

10. Phyllachora sp.

On *Paspalum ciliatifolium* Michx., Clarke.

11. Phyllachora sp.

On *Tridens flavus* (L.) Hitch., Clarke

12. Phyllachora sp.

On *Uniola laxa* (L.) BSP., Clarke

III. PSEUDOSPHAERIALES1. Acanthostigma atrobarbua (Cke. & Ell.) Ell. & Ev.

On *Quercus* sp., Clarke.

2. Acanthostigma decastylum (Cke.) Sacc.

On *Quercus* sp., McIntosh.

3. Acrospermoides subulata Thom. & Mill.

On *Morus rubra* L., Clarke, Greene, Washington.

4. Acrospermum compressum Tode ex Fr.

On *Alnus rugosa* (DuRoi) Spreng., Clarke, Hart; *Betula nigra* L., *Boehmeria cylindrica* (L.) Sw., *Celtis georgiana* Small, Clarke; *Celtis laevigata* Willd., Elbert, McDuffie; *Prunella vulgaris* L., *Ulmus alata* Michx., Clarke; *U. americana* L., Greene, Washington.

5. Acrospermum foliicolum Berk.

On *Acer negundo* L., *Aster undulatus* L., Clarke; *Azalea canescens* Michx., Clarke, Hall; *Baptisia bracteata* (Muhl.) Ell., Clarke; *Cercis canadensis* L., Clarke, Greene, Oglethorpe; *Cirsium altissimum* (L.) Spreng., *Coreopsis major* Walt., Clarke; *Cornus florida* L., Clarke, Columbia, Dooly, Greene, Oglethorpe, Walton; *Crataegus michauxii* Pers., *C. uniflora* Moench., *Eupatorium purpureum* L., *Fraxinus pennsylvanica* Marsh. var. *lanceolata* (Berkh.) Sarg., *Hamamelis virginiana* L., Clarke; *Morus rubra* L., Washington; *Ostrya virginiana* (Mill.) K. Koch, Walton; *Polycodium candicans* Small, *Polymnia canadensis* L., *Quercus margaretta* Ashe, *Solidago altissima* L., *S. serotina* Ait., Clarke.

6. Acrospermum graminum Lib.

On *Carex crinita* Lam., Clarke; *Erianthus brevibarbis* Michx., Walton; *Panicum* sp., *Paspalum* sp., Clarke.

7. Acrospermum viridulum Berk. & Curt.

On *Quercus alba* L., Greene; *Q. montana* Willd., Clarke, Hall, Rabun; *Q. pumila* Walt., Tift; *Q. rubra* L., Clarke.

8. Acrospermum sp.
On *Morus rubra* L., *Prunus angustifolia* Marsh., *P. umbellata* Ell., Clarke.
9. Acrospermum sp.
On *Smilax glauca* Walt., Clarke, Greene.
10. Aglaospora profusa (Fr.) DeNot.
On *Robinia pseudo-acacia* L., Clarke.
11. Amphisphaeria hypoxylon Ell. & Ev.
On *Hypoxylon fuscum* Pers. ex Fr. on *Betula nigra* L.; on *H. rubiginosum* Pers. ex Fr. on *Fraxinus pennsylvanica* Marsh., Clarke.
12. Apiosporella sp.
On *Tilia heterophylla* Vent. var. *michauxii* (Nutt.) Sarg., Clarke.
13. Auerswaldiella puccinioides (Speg.) Theiss. & Syd.
On *Laurocerasus caroliniana* (Mill.) Roem., Chatham.
14. Bertia moriformis (Tode ex Fr.) DeNot.
On *Quercus* sp., Rabun.
15. Botryosphaeria quercuum (Schw. ex Fr.) Sacc.
On *Quercus alba* L., Clarke; *Q. coccinea* Muench., Rabun; *Q. rubra* L., Glynn; *Q. virginiana* Mill., Burke; *Quercus* sp., Clarke.
16. Botryosphaeria ribis (Tode ex Fr.) Gross. & Dug.
On *Acer saccharinum* L., Clarke; *Aesculus octandra* Marsh., Oglethorpe; *Ailanthus altissima* (Mill.) Sw., *Albizia julibrissin* Dur., *Aralia spinosa* L., Clarke; *Betula nigra* L. Morgan; *Chamaecyparis thyoides* (L.) BSP., *Elaeagnus umbellata* Thunb., *Fraxinus pennsylvanica* Marsh. var. *lanceolata* (Borkh.) Sarg., *Gleditsia triacanthos* L., *Hibiscus syriacus* L., *Ilex opaca* Ait., Clarke; *Juglans cinerea* L., Rabun; *Juglans nigra* L., *Ligustrum vulgare* L., *Melia azedarach* L., *Ostrya virginiana* (Mill.) K. Koch, *Paulownia tomentosa* (Thunb.) Steud., *Pinus strobus* L. Clarke; *Populus deltoides* Marsh., Greene; *Populus nigra* L., *Prunus serrulata* Lindl., *Pueraria hirsuta* Schneid., *Rhus copallina* L., *R. glabra* L., Clarke; *Robinia pseudo-acacia* L., Clarke, Rabun; *Salix alba* L., *S. nigra* Marsh., *Sambucus canadensis* L., *S. nigra* L. var. *aurea* Sw., Clarke.
17. Caryospora putaminum (Schw. ex Fr.) DeNot.
On *Carya glabra* (Mill.) Sweet, *C. ovata* (Mill.) K. Koch, *Prunus persica* (L.) Stokes, Clarke.
18. Chaetosphaeria pannicola (Berk. & Curt.) Sacc.
On *Ostrya virginiana* (Mill.) K. Koch, *Platanus occidentalis* L., *Salix nigra* Marsh., Clarke.

19. Chaetosphaeria parvicapsa (Cke.) Sacc.
On Juniperus virginiana L., Clarke.
20. Coronophora ootheca (Berk. & Curt.) Sacc.
On Quercus nigra L., Clarke.
21. Cryptosphaerella annexa (Nits.) v. Höhn.
On Betula nigra L., Clarke.
22. Cucurbitaria fraxini Ell. & Ev.
On Alnus rugosa (DuRoi) Spreng., Clarke.
23. Cucurbitaria sp.
On Quercus nigra L., Glynn.
24. Delacourea sp.
On Quercus nigra L., Clarke.
25. Dibotryon morbosum (Schw. ex Fr.) Theiss. & Syd.
On Prunus angustifolia Marsh., Clarke, Jackson; P. serotina Ehrh., Clarke, Jackson, White; P. umbellata Ell., Prunus sp., (Japanese plum), Clarke.
26. Didymella lophospora Sacc. & Speg.
On Quercus nigra L., Clarke.
27. Didymella prominens Ell. & Ev.
On Hypericum punctatum Lam., Clarke.
28. Didymella sp.
On Lespedeza frutescens (L.) Britt., Clarke.
29. Didymella sp.
On Liquidambar styraciflua L., McIntosh.
30. Didymella sp.
On Saponaria officinalis L., Clarke.
31. Didymosphaeria arundinariae Ell. & Ev.
On Arundinaria tecta (Walt.) Muhl., Clarke.
32. Didymosphaeria chionanthi Thom. & Mill.
On Chionanthus virginica L., Putnam.
33. Didymosphaeria cupula (Ell.) Sacc.
On Quercus montana Willd., DeKalb.
34. Didymosphaeria epidermidis (Fr.) Fckl.
On Aster cricoides L. var. platyphyllus T. & G., Erigeron canadensis L., Sambucus canadensis L., Clarke; Viburnum rufidulum Raf., Morgan.

35. Didymosphaeria graminicola Ell. & Ev.
On *Zea mays* L., Clarke.
36. Didymosphaeria magnoliae Thom. & Mill.
On *Magnolia tripetala* L., Oglethorpe; *M. virginiana* L.,
Pierce, Washington.
37. Didymosphaeria thalictri Ell. & Dearn.
On *Thalictrum macrostylum* (Shuttlw.) Small & Heller, Clarke.
38. Didymosphaeria sp.
On *Betula nigra* L., Clarke,
39. Didymosphaeria sp.
On *Camellia japonica* L., Thomas.
40. Didymosphaeria sp.
On *Smilax laurifolia* L., Glynn.
41. Didymosphaeria sp.
On *Ulmus americana* L., Clarke.
42. Didymosphaeria sp.
On *Viburnum prunifolium* L., Oglethorpe.
43. Fenestella phaeospora Sacc.
On *Quercus alba* L., Rabun; *Q. montana* Willd., *Q. prinus*
L., Clarke.
44. Fracchiaca callista (Berk. & Curt.) Sacc.
On *Carpinus caroliniana* Walt., Clarke; *Sorbus americana*
Marsh., Union.
45. Fracchiaca heterogenea Sacc.
On *Cercis canadensis* L., *Morus rubra* L., Clarke; *Myrica* sp
McIntosh; *Pinus strobus* L., *P. taeda* L., *Robinia pseudo-acacia* L., *Salix*
nigra Marsh., *Tilia heterophylla* Vent. var. *michauxii* (Nutt.) Sarg., Clar
46. Herpotrichia albidostoma (Pk.) Sacc.
On wood, Chatham.
47. Herpotrichia pezizula (Berk. & Curt.) Wint.
On *Acer rubrum* L., Clarke; *Quercus nigra* L., Chatham,
Clarke; *Q. rubra* L., Clarke; *Quercus* sp., McIntosh; *Vitis rotundifolia*
Michx., Clarke; wood, Bullock, Thomas.
48. Karstenula sp.
On *Asimina triloba* (L.) Dunal, DeKalb.
49. Karstenula sp.
On *Ptelea trifoliata* L., DeKalb.

50. Lasiosphaeria hispida (Tode ex Fr.) Fckl.
On *Quercus* sp., Clarke; wood, Clarke, Greene.
51. Lasiosphaeria cvina (Pers. ex Fr.) Ces. & DeNot.
On *Liriodendron tulipifera* L., Clarke; wood, Greene.
52. Lasiosphaeria spermoides (Hoffm. ex Fr.) Ces. & DeNot.
On *Rubus argutus* Lk., Clarke.
53. Lasiosphaeria strigosa (Alb. & Schw. ex Fr.) Sacc.
On *Liriodendron tulipifera* L., Clarke; *Quercus* sp. Rabun.
54. Lasiosphaeria sp.
On *Carex lurida* Wahl., Clarke.
55. Lasiosphaeria sp.
On *Erianthus brevibarbis* Michx., Pierce.
56. Leptomassaria simplex (Oth) Petrak.
On *Tillia truncata* Spach, Lumpkin.
57. Leptosphaeria clavigera (Cke. & Ell.) Sacc.
On *Cimicifuga racemosa* (L.) Nutt.; *Lespedeza virginica* (L.) Britt., Clarke.
58. Leptosphaeria comatella (Cke. & Ell.) Sacc.
On *Coreopsis major* Walt., *Daucus carota* L., *Erigeron ramosus* (Walt.) BSP., *Eupatorium hyssopifolium* L., *Foeniculum vulgare* Hill, *Galium pilosum* Ait., *Gerardia virginica* (L.) BSP., *Helianthus microcephalus* T. & G., *Isopappus divaricatus* (Nutt.) T. & G., *Lespedeza virginica* (L.) Britt., *Monarda punctata* L., *Polygonum sagittatum* L., *Saponaria officinalis* L., *Verbesina occidentalis* (L.) Walt., *Xanthium canadensis* Mill., Clarke.
59. Leptosphaeria coniothyrium (Fckl.) Sacc.
On *Baptisia lanceolata* Walt.; Tift; *Rubus idaeus* L., var. Chief, Cuthbert, Latham, Newburgh, New Empire, Red Rath, St. Regis, Viking; *Rubus neglectus* Pk. var. Sodus purple; *Rubus* sp. var. Boyen; *Silphium dentatum* Ell., Clarke.
60. Leptosphaeria culmicola (Fr.) Karst.
On *Arundinaria tecta* (Walt.) Muhl., *Uniola latifolia* Michx., Clarke.
61. Leptosphaeria culmorum Auers.
On *Andropogon virginicus* L., *Tridens flavus* (L.) Hitch., Clarke.
62. Leptosphaeria doliolum (Pers. ex Fr.) DeNot.
On *Datura stramonium* L., *Foeniculum vulgare* Hill, *Hibiscus esculentus* L., *Saponaria officinalis* L., Clarke.

63. Leptosphaeria epicarecta (Cke.) Sacc.
On *Carex lurida* Wahl., Clarke.
64. Leptosphaeria mesoedema (Berk. & Curt.) Ell. & Ev.
On *Erigeron canadensis* L., *Gnaphalium obtusifolium* L.,
Solidago serotina Ait., *Verbesina occidentalis* (L.) Walt., *Verbesina*
virginica L., Clarke; weed, Dooly.
65. Leptosphaeria muricata Ell. & Ev.
On *Andropogon virginicus* L., Glynn.
66. Leptosphaeria ogilviensis (Berk. & Br.) Ces. & DeNot.
On *Aster ericoides* L. var. *platyphyllus* T. & G., *Aster*
patens Ait., *Isopappus divaricatus* (Nutt.) T. & G., Clarke; weed, Rabun.
67. Leptosphaeria orthogramma (Berk. & Curt.) Sacc.
On *Erianthus brevibarbis* Michx., Morgan.
68. Leptosphaeria platanicola (Howe) Sacc.
On *Platanus occidentalis* L., Clarke.
69. Leptosphaeria steironematis Ell. & Ev.
On *Steironema ciliatum* (L.) Raf., Clarke.
70. Leptosphaeria subconica (Cke. & Pk.) Sacc.
On *Ambrosia trifida* L., *Aster dumosus* L., *A. ericoides*
L. var. *platyphyllus* T. & G., *Boehmeria cylindrica* (L.) Sw., *Chelone*
glabra L., Clarke; *Chrysopsis mariana* (L.) Nutt., Union; *Eupatorium pur-*
pureum L., *Hibiscus esculentus* L., *Solidago altissima* L., *S. brachyphylla*
Chapm., *S. curtisii* T. & G., *Verbesina virginica* L., Clarke.
71. Leptosphaeria vagabunda Sacc.
On *Viburnum rufidulum* Raf., *Vitis baileyana* Muns., Clarke.
72. Leptosphaeria virginica (Cke. & Ell.) Sacc.
On *Lepidium virginicum* L., Clarke.
73. Leptosphaeria sp.
On *Aster sagittifolius* Wed. var. *dissectiflorus* Burg.,
Clarke.
74. Leptosphaeria sp.
On *Daucus carota* L., *Polymnia canadensis* L., *Smallanthus*
vedalia (L.) Mack., *Solidago caesia* L., Clarke.
75. Leptosphaeria sp.
On *Eupatorium capillifolium* (Lam.) Small, Clarke.
76. Leptosphaeria sp.
On *Holcus halepensis* L., Clarke.

77. Leptosphaeria sp.
On *Juncus effusus* L., Glynn.
78. Leptosphaeria sp.
On *Monarda punctata* L., Clarke.
- Tift. 79. Leptosphaeria sp.
On *Myrica carolinensis* Mill., Pierce; *Myrica cerifera* L.,
80. Leptosphaeria sp.
On *Vernonia glauca* (L.) Willd., Clarke.
81. Massaria argus (Berk. & Br.) Fres.
On *Betula lenta* L., Rabun; *Betula nigra* L., Clarke.
82. Massaria epileuca Berk. & Curt.
On *Morus alba* L., *Morus rubra* L., Clarke.
83. Massaria foedans Fr.
On *Celtis georgiana* Small, Clarke.
84. Massaria inquinans Tode ex Fr.
On *Fagus grandifolia* Ehrh., Rabun.
85. Massaria platani Ces.
On *Platanus occidentalis* L., Clarke.
86. Massaria plumigera Ell. & Ev.
On *Morus rubra* L., Clarke, Rabun.
87. Massaria plumigera Ell. & Ev. var. tetraspora Dearn. & House.
On *Acer negundo* L., Clarke; *Viburnum nudum* L., Columbia;
Viburnum rufidulum Raf., Clarke, Morgan, Walton.
88. Massaria ulmi Fekl.
On *Ulmus fulva* Michx., Oglethorpe.
89. Massaria vomitoria Berk. & Curt.
On *Acer leucoderme* Small, Clarke; *Acer rubrum* L.,
- McDuffie. 90. Massaria sp.
On *Benzoin aestivale* (L.) Nees, Clarke.
91. Massaria sp.
On *Carpinus caroliniana* Walt., Clarke.
92. Massariella curreyi (Tul.) Sacc.
On *Tilia heterophylla* Vent. var. *michauxii* (Nutt.) Sarg.,
Clarke.

93. Massariella curreyi (Tul.) Sacc. var. americana Pk.
On Tilia heterophylla Vent. var. michauxii (Nutt.) Sarg.,
Clarke.
94. Massariella seriata (Cke.) Sacc.
On Cydonia oblonga Mill., Clarke.
95. Melanomma helicophilum (Cke.) Sacc.
On Quercus velutina Lam., Rabun.
96. Melanomma pulvis-pyrius (Pers. ex Fr.) Fckl.
On wood, Bullock.
97. Melanomma sporadicum Ell. & Ev.
On Quercus sp., Morgan.
98. Melogramma meliae Curt. ex Cke.
On Melia azedarach L., Clarke.
99. Melogramma vagans DeNot.
On Carpinus caroliniana Walt., Greene, Jackson.
100. Melogramma sp.
On Pyrularia pubera Michx., DeKalb.
101. Metasphaeria aulica (Cke. & Ell.) Sacc.
On Impatiens biflora Walt., Clarke.
102. Metasphaeria cavernosa (Ell. & Ev.) Sacc.
On Taxodium distichum (L.) Rich., Glynn, McIntosh.
103. Metasphaeria complanata (Tode ex Fr.) Sacc.
On Ambrosia artemisiifolia L., Aster undulatus L.,
Clarke; Polygonum pennsylvanicum L., Rabun; Rudbeckia laciniata L.,
Clarke.
104. Metasphaeria infuscans Ell. & Ev.
On Andropogon virginicus L., Clarke.
105. Metasphaeria leiostega (Ell.) Sacc.
On Carpinus caroliniana Walt., Fraxinus pennsylvanica
Marsh. var. lanceolata (Borkh.) Sarg., Clarke.
106. Metasphaeria palmetta (Cke.) Sacc.
On Sabal minor (Jacq.) Pers., S. palmetto (Walt.) Todd,
McIntosh.
107. Metasphaeria panicorum (Cke.) Sacc.
On Panicum commutatum Schult., Clarke.

108. Metasphaeria punctulata Ell. & Ev.
On *Panicum clandestinum* L., *P. commutatum* Schult.,
Clarke.
109. Metasphaeria rubida Ell. & Ev.
On *Liriodendron tulipifera* L., Clarke.
110. Metasphaeria sabalensis Cke.
On *Sabal minor* (Jacq.) Pers., McIntosh.
111. Metasphaeria subcutanea (Cke. & Ell.) Sacc.
On *Styrax americana* Lam., Clarke.
112. Metasphaeria sp.
On *Apios tuberosa* Moench., *Boehmeria cylindrica* (L.)
Sw., *Cirsium altissimum* (L.) Spreng., *Daucus carota* L., *Impatiens biflora*
Walt., *Smallanthus uvedalia* (L.) Mack., *Solanum melongena* L., *Stachys*
tenuifolia Willd., *Steironema ciliatum* (L.) Raf., *Vernonia glauca* (L.)
Willd., Clarke.
113. Metasphaeria sp.
On *Lospodeza virginica* (L.) Britt., Clarke.
114. Neopeckia diffusa (Schw.) Starb.
On *Nyssa* sp., Chatham; *Robinia pseudo-acacia* L., Rabun;
wood, Bullock.
115. Ophiobolus acuminatus (Sow. ex Fr.) Duby.
On *Holcus halapensis* L., *Panicum clandestinum* L., *Rumex*
verticillatus L., *Scirpus georgianus* Harper, *Setaria glauca* (L.) Beauv.,
Xanthium canadensis Mill., Clarke.
116. Ophiobolus anguillides (Cke.) Sacc.
On *Ambrosia artemisiifolia* L., Banks, Clarke, Oglethorpe,
Union; *A. trifida* L., *Cirsium altissimum* (L.) Spreng., Clarke; *Coreopsis*
major Walt. var. *oemleri* Britt., *Erigeron ramosus* (Walt.) BSP., *Helian-*
thus divaricatus L., *Monarda punctata* L., *Rudbeckia hirta* L., Clarke;
Xanthium canadense Mill., Clarke, Oconee.
117. Ophiobolus fulgidus (Cke. & Pk.) Sacc.
On *Sonchus oleraceus* L., *Vernonia noveboracensis* (L.)
Willd., Clarke.
118. Ophiobolus stictisporus (Cke. & Ell.) Sacc.
On *Arundinaria tecta* (Walt.) Muhl., *Danthonia sericea*
Nutt., Clarke.
119. Ophiobolus sp.
On *Achillea millefolium* L., *Ambrosia artemisiifolia* L.,
Ansonia tabernaemontana Walt., *Cassia chamaecrista* L., *Cimicifuga*
racemosa (L.) Nutt., *Coreopsis major* Walt., *C. major* var. *oemleri* Britt.,
Daucus carota L., *Desmodium canadense* (L.) DC., *D. nudiflorum* (L.) DC.,

D. paniculatum (L.) DC., var. *angustifolium* T. & G., *Firmiana platanifolia* (L.) R. Br., *Helianthus microcephalus* T. & G., *Ligusticum canadense* (L.) Britt., *Oxypolis rigidior* (L.) Coult. & Rose, *Sanicula canadensis* L., *Smilax laurifolia* L., *Solidago serotina* Ait., Clarke.

120. Ophiobolus sp.

On *Cirsium altissimum* (L.) Spreng., Clarke.

121. Ophiobolus sp.

On *Hibiscus esculentus* L., Clarke.

122. Ophiobolus sp.

On *Juncus effusus* L., Clarke.

123. Parodiella perisporioides (Berk. & Curt.) Speg.

On *Desmodium canadense* (L.) DC., Clarke, Meriwether.

124. Physalospora fusca Stev.

On *Carya* sp., Glynn.

125. Physalospora obtusa (Schw.) Cke.

On *Acer negundo* L., Clarke, McDuffie; *A. rubrum* L., *Aesculus pavia* L., *Amorpha fruticosa* L., DeKalb; *Aronia arbutifolia* (L.) Ell., Jenkins; *Baccharis halimifolia* L., Jenkins, Wilkes; *Baptisia perfoliata* (L.) R. Br., Jenkins; *Benzoin aestivale* (L.) Nees, Clarke, DeKalb; *Berchemia scandens* (Hill) Trel., McDuffie; *Callicarpa americana* L., DeKalb, McDuffie; *Calycanthus floridus* L., *Carya alba* (L.) K. Koch, Clarke; *C. cordiformis* (Weng.) K. Koch, Oglethorpe; *Castanea alnifolia* Nutt., Cook; *Ceanothus americanus* L., *Cephalanthus occidentalis* L., *Cirsium altissimum* (L.) Spreng., *Citrus trifoliata* L., *Cocculus carolinus* (L.) DC., *Cornus amomum* Mill., *Cotinus coggyria* Scop., *Cotoneaster franchoti* Bois., Clarke; *Crataegus marshallii* Eggl., Oglethorpe; *Crataegus* sp., Clarke, Pierce; *Cyrilla racemiflora* L., Jenkins, Pierce; *Euonymus americanus* L., *Foeniculum vulgare* Hill, Clarke; *Gelsemium sempervirens* (L.) Ait. f., Columbia; *Ilex ambigua* (Michx.) Chapm., Gwinnett; *I. glabra* (L.) Gray, Columbia, Glynn, Jenkins; *Itea virginica* L., *Lespedeza virginica* (L.) Britt., Clarke; *Liriodendron tulipifera* L., McDuffie; *Lonicera sempervirens* L., *Ludwigia alternifolia* L., Clarke; *Lyonia lucida* (Lam.) K. Koch, Jenkins; *Magnolia macrophylla* Michx., DeKalb; *Magnolia virginiana* L., Glynn, Jenkins, Pierce; *Malus pumila* Mill., Clarke, Rabun; *Myrica cerifera* L., Jenkins, Laurens; *Nerium oleander* L., Dooly; *Oenothera laciniata* Hill, Clarke; *Ostrya virginiana* (Mill.) K. Koch, Columbia; *Oxydendrum arboreum* (L.) DC., *Physocarpus opulifolius* (L.) Maxim, *Pinus strobus* L., Clarke; *Pinus virginiana* Mill., Rabun; *Pistacia chinensis* Bge., *Platanus occidentalis* L., Clarke; *Populus deltoides* Marsh., Jenkins; *Prunus persica* (L.) Stokes, *P. serotina* Ehrh., *Rhamnus caroliniana* Walt., *Rubus argutus* Lk., *Rubus* sp., var. *brainerd*, *Rumex crispus* L., *Rumex obtusifolius* L., *Salix babylonica* L., *Solidago odora* Ait., *Spiraea prunifolia* Sieb. & Zucc., *S. thunbergii* Sieb., *Steironema ciliatum* (L.) Raf., *Tecoma radicans* (L.) Juss., *Thuja occidentalis* L., Clarke; *Ulmus americana* L., *U. fulva* Michx., Oglethorpe;

Viburnum acerifolium L., Clarke; *V. nudum* L., Columbia; *V. obovatum* Walt., Jenkins; *Vitis labrusca* L. var. *Catawba*, *V. rotundifolia* Michx., Clarke.

126. Physalospora sp.
On *Tecoma radicans* (L.) Juss., Clarke.

127. Pleomassaria carpini (Fckl.) Sacc.
On *Carpinus caroliniana* Walt., Clarke.

128. Pleosphaeria echinata (Ell. & Ev.) Mill.
On *Acer rubrum* L., Oglethorpe; *Crataegus spathulata* Michx., *Fraxinus pennsylvanica* Marsh. var. *lanceolata* (Borkh.) Sarg., Clarke.

129. Pleospora compositarum Earle
On *Helenium tenuifolium* Nutt., Clarke.

130. Pleospora diaporthoides Ell. & Ev.
On *Ambrosia artemisiifolia* L., Clarke.

131. Pleospora herbarum (Pers. ex Fr.) Rabh.
On *Ambrosia artemisiifolia* L., Clarke.

132. Pleospora thümeniana Sacc.
On *Yucca aloifolia* L., Clarke.

133. Pleospora vulgaris Niessl.
On *Daucus carota* L., Clarke; *Eupatorium capillifolium* (Lam.) Small, Oglethorpe; *Foeniculum vulgare* Hill, *Ruabeckia hirta* L., *Verbesina occidentalis* (L.) Walt., *V. virginica* L., *Vitis baileyana* Muns., Clarke.

134. Pleospora sp.
On *Eupatorium capillifolium* (Lam.) Small, Pierce.

135. Pleospora sp.
On *Juncus tenuis* Willd., Clarke.

136. Pleospora sp.
On *Uniola latifolia* Michx., Clarke.

137. Pyrenophora relicina (Fckl.) Sacc.
On *Secale cereale* L., *Triticum aestivum* L., Clarke.

138. Rhographus clavisporus (Cke. & Pk.) Sacc.
On *Andropogon virginicus* L., *Rynchospora glomerata* (L.) Vahl, Clarke, Madison; *Setaria glauca* (L.) Beauv., Clarke.

139. Rhographus zae Pat.
On *Zea mays* L., Clarke.

140. Rosenscheldia heliopsidis (Schw. ex Fr.) Theiss. & Syd.
On Helianthus divaricatus L., Clarke.
141. Teichospora ohiensis Ell. & Ev.
On Salix nigra Marsh., Oglethorpe.
142. Trichodothis comata (Berk. & Rav.) Theiss. & Syd.
On Magnolia virginiana L., Washington.
143. Trichosphaeria pilosa (Pers. ex Fr.) Fckl.
On Quercus sp., Clarke.
144. Trichosphaeria pulchriseta (Pk.) Ell. & Ev.
On Celtis georgiana Small, Quercus sp., Clarke.
145. Tympanopsis euomphala (Berk. & Curt.) Starb.
On Carpinus caroliniana Walt., Fraxinus pennsylvanica Marsh. var. lanceolata (Borkh.) Sarg., Quercus sp., Clarke.
146. Urosporella americana Atk.
On Cassia chamaecrista L., Lespedeza virginica (L.) Britt., Clarke.
147. Venturia asterinoides Ell. & Mart.
On Quercus catesbaei Michx., Richmond; Q. maxima (Marsh.) Ashe, Q. rubra L., Q. velutina Lam., Clarke.
148. Venturia graminicola Wint.
On Carex pennsylvanica Lam., Clarke.
149. Venturia inaequalis (Cke.) Wint.
On Malus pumila Mill., Banks, Clarke, Habersham, Rabun, Union; Pyracantha coccinea Roem. var. lalandi Dipp., Clarke.
150. Venturia oxydendri Wolf.
On Oxydendrum arboreum (L.) DC., Clarke, Hall, Hart, Lincoln.
151. Venturia pyrina Aderh.
On Pyrus communis L., Clarke.
152. Zignoella pulviscula (Curr.) Sacc.
On Quercus velutina Lam., Clarke; Quercus sp., Clarke, Rabun.

IV. DOTHIDEALES

1. Dothideaceae

1. Coccoidella scutula (Berk. & Curt.) v. Höhn.
On Persea pubescens (Pursh) Sarg., Charlton, McIntosh.

2. Dothidea collecta (Schw.) Ell. & Ev.

On *Acer negundo* L., *Alnus rugosa* (DuRoi) Spreng., *Oglethorpe*; *Asimina triloba* (L.) Dunal, DeKalb; *Azalea canescens* Michx., Clarke; *Bignonia capreolata* L., Clarke, *Oglethorpe*; *Foeniculum vulgare* Hill, Clarke; *Fraxinus pennsylvanica* Marsh. var. *lanceolata* (Borkh.) Sarg., *Oglethorpe*; *Hibiscus syriacus* L., Clarke; *Lonicera flava* Sims, DeKalb; *L. japonica* Thunb., Clark, *Oglethorpe*; *Melia azedarach* L., *Rhus glabra* L., Clarke; *R. toxicodendron* L., *Sambucus canadensis* L., *Oglethorpe*.

3. Dothidella ribesia (Pers. ex Fr.) Theiss. & Syd.

On *Ribes curvatum* Small, DeKalb.

4. Dothidella trifolii (Pers. ex Fr.) Bayl.-Ell. & Stan.

On *Trifolium incarnatum* L., Clarke, Elbert; *T. repens* L., Clarke.

2. Mycosphaerellaceae1. Didymellina iridis (Desm.) v. Höhn.

On *Iris* sp., Clarke.

2. Guignardia aesculi (Pk.) Stew.

On *Aesculus georgiana* Sarg., Clarke.

3. Guignardia bidwellii (Ell.) Viala & Ravaz.

On *Parthenocissus tricuspidata* (Sieb. & Zucc.) Planch. *Vitis labrusca* L., *V. rotundifolia* Michx., Clarke.

4. Guignardia bumeliae Thom. & Mill.

On *Bumelia lycioides* Gaertn. f., Putnam.

5. Guignardia magnoliae (Schw.) Mill.

On *Magnolia virginiana* L., Richmond, Washington.

6. Guignardia sp.

On *Cliftonia monophylla* (Lam.) Sarg., Pierce.

7. Guignardia sp.

On *Typha latifolia* L., Clarke.

8. Guignardia sp.

On *Uvularia perfoliata* L., Clarke.

9. Mycosphaerella aquatica (Cke.) Mill.

On *Quercus nigra* L., Clarke, McIntosh; *Q. virginiana* Mill., Cook.

10. Mycosphaerella arachidicola W. A. Jenkins

On *Arachis hypogaea* L., Spalding, Tift.

11. Mycosphaerella arachnoidea Wolf
On *Morus rubra* L., Clarke.
12. Mycosphaerella arbutifoliae (Pk.) House
On *Aronia arbutifolia* (L.) Ell., Clarke.
13. Mycosphaerella areola Ehrl. & Wolf.
On *Cossypium hirsutum* L., Clarke.
14. Mycosphaerella berkeleyi W. A. Jenkins.
On *Arachis hypogaea* L., Clarke, Spalding, Tift.
15. Mycosphaerella bolleana Hig.
On *Ficus carica* L., Clarke, Spalding.
16. Mycosphaerella bumeliae (Cke.) Mill.
On *Bumelia lycioides* Gaertn. f., Clarke; *Bumelia* sp.,
McIntosh.
17. Mycosphaerella caroliniana (Wolf.) Mill.
On *Oxydendrum arboreum* (L.) DC., Clarke, Gwinnett, Hall,
Rabun.
18. Mycosphaerella caryigena Demaree & Cole
On *Carya pecan* (Marsh.) Engl. & Graebn., Pulaski.
19. Mycosphaerella catesbyi (Cke.) Mill.
On *Quercus catesbaei* Michx., Cook, McIntosh.
20. Mycosphaerella cercidicola (Ell. & Kellm.) Wolf
On *Cercis canadensis* L., Clarke, Elbert.
21. Mycosphaerella colorata (Pk.) Earle
On *Kalmia latifolia* L., Rabun.
22. Mycosphaerella confusa Wolf
On *Rubus argutus* Lk., *R. flagellaris* Willd., Clarke;
R. floridus Tratt., Oglethorpe; *R. idaeus* L., *R. neglectus* Pk., *Rubus* sp.
var. Boysen, Clarke.
23. Mycosphaerella corni (Schw.) Mill.
On *Cornus florida* L., Clarke.
24. Mycosphaerella cruenta Latham
On *Glycine max* Merr., *Phaseolus vulgaris* L., *Stizolobium*
deeringianum Bort., *Vigna sinensis* (L.) Endl., Clarke.
25. Mycosphaerella dendroides (Cke.) Demaree & Cole
On *Carya laciniata* (Michx. f.) Loud., Oglethorpe; *Carya*
pecan (Marsh.) Engl. & Graebn., Thomas.

26. Mycosphaerella effigurata (Schw.) House
On *Fraxinus americana* L., DeKalb; *F. biltmoreana* Beadle,
Hart; *F. pennsylvanica* Marsh. var. *lanceolata* (Borkh.) Sarg., Clarke.
27. Mycosphaerella fragariae (Tul.) Lind.
On *Fragaria virginiana* Duch., Clarke.
28. Mycosphaerella fraxinicola (Schw.) House
On *Fraxinus biltmoreana* Beadle, Gwinnett, Hart; *F. pennsyl-
vanica* Marsh. var. *lanceolata* (Borkh.) Sarg., Clarke, Greene.
29. Mycosphaerella gordoniae (Cke.) Mill.
On *Gordonia lasianthus* L., McIntosh.
30. Mycosphaerella gossypina (Atk.) Earle
On *Gossypium hirsutum* L., Clarke.
31. Mycosphaerella maculiformis (Pers. ex Fr.) Schroet.
On *Acer rubrum* L., *Baptisia bracteata* (Muhl.) Ell.,
Clarke; *Carya alba* (L.) K. Koch, Gwinnett; *Castanea mollissima* Bl.,
Firmiana platanifolia (L.) R. Br., Clarke; *Liquidambar styraciflua* L.,
Clarke, Lincoln, Walton; *Liriodendron tulipifera* L., Clarke; *Magnolia
fraseri* Walt., Rabun; *Populus alba* L., *P. nigra* L., Clarke; *Quercus
coccinea* Muench., Clarke, Gwinnett; *Q. maxima* (Marsh.) Ashe, Gwinnett.
32. Mycosphaerella mori Wolf
On *Morus alba* L., Clarke.
33. Mycosphaerella myricae Miles
On *Myrica carolinensis* Mill., McDuffie, Pierce.
34. Mycosphaerella nigrita (Cke.) Mill.
On *Quercus lyrata* Walt., Oglethorpe.
35. Mycosphaerella nyssaeicola (Cke.) Wolf
On *Nyssa ogeche* Marsh., Tift; *Nyssa sylvatica* Marsh.,
Clarke, Jones, Rabun.
36. Mycosphaerella oleina (Cke.) Mill.
On *Osmanthus americanus* (L.) B. & H., McIntosh.
37. Mycosphaerella persica Hig. & Wolf
On *Prunus persica* (L.) Stokes, Clarke, Spalding.
38. Mycosphaerella personata Hig.
On *Vitis labrusca* L., Spalding.
39. Mycosphaerella pinodes (Berk. & Blox.) Vestergr.
On *Pisum arvense* L. var. *Austrian Winter Pea*, Clarke,
Jackson, Oconee.

40. Mycosphaerella platanifolia (Cke.) Wolf
On *Platanus occidentalis* L., Clarke, Gwinnett, Madison, McIntosh.
41. Mycosphaerella populorum Thomp.
On *Populus deltoides* Marsh., Clarke, Wilkes.
42. Mycosphaerella punctiformis (Pers. ex Fr.) Schroet.
On *Acer leucoderme* Small, Greene; *Aesculus pavia* L., DeKalb; *Amelanchier canadensis* (L.) Medic., Clarke, Rabun; *A. laevis* Wieg., Asimina parviflora (Michx.) Dunal, Clarke; *Carya alba* (L.) K. Koch, Clarke, Hall; *C. ovalis* (Wang.) Sarg., Clarke, Oglethorpe; *C. pallida* (Ashe) Engl. & Graebn., Clarke, McDuffie; *C. pecan* (Marsh.) Engl. & Graebn., Clarke; *Castanea dentata* (Marsh.) Borkh., Gwinnett; *Chionanthus virginica* L., Putnam; *Corylus maxima* Mill., *Crataegus marshallii* Eggl., Oglethorpe; *C. michauxii* Pers., *Diospyros virginiana* L., *Fagus grandifolia* Ehrh., Clarke; *Halesia carolina* L., Putnam; *Hamamelis virginiana* L., DeKalb, Rabun; *Magnolia tripetala* L., Clarke, DeKalb; *Ostrya virginiana* (Mill.) K. Koch, Clarke, Walton; *Populus tomentosa* Carr., Clarke; *Prunus serotina* Ehrh., Hall; *Quercus alba* L., Clarke, Gwinnett; *Q. marilandica* Muench., Hall; *Q. maxima* (Marsh.) Ashe, Clarke; *Q. montana* Willd., Clarke, Hall, Lincoln; *Q. nigra* L., *Q. phellos* L., Clarke; *Q. velutina* Lam., Gwinnett; *Styrax grandifolia* Ait., *Tilia heterophylla* Vent. var. *michauxii* (Nutt.) Sarg., Clarke; *Ulmus americana* L., Greene; *U. pumila* L., *Vaccinium umonium* Ait., *V. arboreum* Marsh., Clarke; *V. vacillans* Kalm, Lincoln; *Viburnum rufidulum* Raf., Clarke.
43. Mycosphaerella pyrina (Ell. & Ev.) Mill.
On *Pyrus sinensis* Lindl. x *P. communis* L., Clarke.
44. Mycosphaerella rosicola Davis
On *Rosa* sp., Clatham, Clarke, Tift.
45. Mycosphaerella rubi Roark
On *Rubus argutus* Lk., *R. flagellaris* Willd., Clarke.
46. Mycosphaerella sarraceniae (Schw.) House
On *Sarracenia flava* L., Tift.
47. Mycosphaerella sassafras (Ell. & Ev.) Bubák & Kabát
On *Sassafras variifolium* (Salisb.) Ktze., Clarke.
48. Mycosphaerella sentina (Fr.) Schroet.
On *Pyrus communis* L., Clarke.
49. Mycosphaerella smilacicola (Cke.) Overh.
On *Smilax glauca* Walt., Clarke; *S. laurifolia* L., Clarke, Elbert, Tift; *S. rotundifolia* L., Clarke, Elbert.

50. Mycosphaerella spleniata (Oke. & Pk.) House
On *Quercus alba* L., Clarke, Walton; *Q. austrina* Small,
Lee; *Q. margareta* Ashe, Richmond; *Q. prinus* L., Washington; *Q. stellata*
Wang., Clarke.
51. Mycosphaerella staphylina (Ell. & Ev.) Mill.
On *Staphylea trifolia* L., Clarke.
52. Mycosphaerella tulipifera (Schw.) Hig.
On *Liriodendron tulipifera* L., Clarke, Madison.
53. Mycosphaerella typhae (Lasch) Lind.
On *Typha latifolia* L., Clarke.
54. Mycosphaerella ulmi Kleb.
On *Ulmus americana* L., Clarke.
55. Mycosphaerella weigeliae (Sacc. & Trott.) Fairm.
On *Diervilla florida* Sieb. & Zucc., Clarke.
56. Mycosphaerella sp.
On *Acer saccharum* Marsh., Clarke.
57. Mycosphaerella sp.
On *Amsonia tabernaemontana* Walt., Clarke.
58. Mycosphaerella sp.
On *Catalpa bignonioides* Walt., Clarke.
59. Mycosphaerella sp.
On *Crataegus michauxii* Pers., Clarke.
60. Mycosphaerella sp.
On *Crataegus ravenelii* Sarg., Wilkes.
61. Mycosphaerella sp.
On *Elaeagnus umbellata* Thunb., Clarke.
62. Mycosphaerella sp.
On *Eupatorium purpureum* L., Clarke.
63. Mycosphaerella sp.
Fraxinus caroliniana Mill., Tift.
64. Mycosphaerella sp.
On *Gerardia virginica* (L.) BSP., Clarke.
65. Mycosphaerella sp.
On *Gleditsia triacanthos* L., Clarke.
66. Mycosphaerella sp.
On *Hamamelis virginiana* L., Putnam.

67. Mycosphaerella sp.
On *Helianthus microcephalus* T. & G., Clarke.
68. Mycosphaerella sp.
On *Ligusticum canadense* (L.) Britt., Clarke.
69. Mycosphaerella sp.
On *Liquidambar styraciflua* L., Madison.
70. Mycosphaerella sp.
On *Magnolia cordata* Michx., Clarke, Putnam
71. Mycosphaerella sp.
On *Magnolia virginiana* L., Dooly, Pierce, Washington.
72. Mycosphaerella sp.
On *Prunus serotina* Ehrh., Clarke.
73. Mycosphaerella sp.
On *Robinia pseudo-acacia* L., Clarke.
74. Mycosphaerella sp.
On *Salix babylonica* L., Clarke.
75. Mycosphaerella sp.
On *Sericocarpus asteroides* (L.) BSP., Clarke.
76. Mycosphaerella sp.
On *Solidago boottii* Hook., Clarke.
77. Mycosphaerella sp.
On *Solidago caesia* L., Clarke.
78. Mycosphaerella sp.
On *Symplocos tinctoria* (L.) L'Her., Clarke.
79. Mycosphaerella sp.
On *Ulmus alata* Michx., *Ulmus serotina* Sarg., Clarke.
80. Phaeosphaerella sp.
On *Alnus rugosa* (DuRoi) Spreng., Clarke.
81. Pseudoplea briosiana (Poll.) v. Höhn.
On *Medicago sativa* L., *Trifolium* sp., Clarke.
82. Sphaerognomonia carpineae (Fr.) Poteb.
On *Acer rubrum* L., *Alnus rugosa* (DuRoi) Spreng., *Betula nigra* L., Clarke; *Carpinus caroliniana* Walt., Clarke, Columbia, Madison; *Castanea dentata* (Marsh.) Borkh., *Corylus maxima* Mill., Clarke; *Ostrya virginiana* (Mill.) K. Koch, Columbia.

83. Sphaeromononia polystigma (Ell. & Ev.) Thon. & Mill.

On *Quercus alba* L., Clarke; *Q. cinerea* Michx., Washington;
Q. coccinea Muench., Clarke; *Q. georgiana* Curt., DeKalb; *Q. margaretta*
Ashe, Clarke; *Q. marilandica* Muench., Jones; *Q. maxima* (Marsh.) Ashe,
Clarke, DeKalb, McDuffie; *Q. nigra* L., *Q. palustris* Muench., *Q. prinus* L.,
Clarke; *Q. velutina* Lam., Clarke, Greene.

(Department of Plant Pathology, University of Georgia, Athens, Ga.)

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Supplement 132

The Wheat Stem Rust Epidemic of Kansas in 1940

October 1, 1941



The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

THE WHEAT STEM RUST EPIDEMIC OF KANSAS IN 1940 ^{1/}

By L. E. Melchers, Plant Pathologist, Kansas Agricultural
Experiment Station. ^{2/}

Plant Disease Reporter
Supplement 132

October 1, 1941

Loss from stem rust of wheat, Puccinia graminis tritici Pers., in Kansas the past 6 years has been a matter of concern to those connected with the hard winter wheat industry of the Plains area. There is no other 6-year period in the history of wheat production in Kansas in which 4 stem-rust epiphytotics are recorded. The total loss from stem rust during these 6 years (1935-1940) is as large or larger than the combined loss which had occurred in Kansas up to that time, since the epiphytotic of 1904.

The loss from stem rust has stimulated research on the stem-rust problems affecting wheat and oats in Kansas and added attention is being directed to the matter of breeding for resistance to stem and leaf rusts of hard winter wheats and spring oats adapted to this area. Although the present breeding program, emphasizing stem-rust resistance, has been under way only about 5 years, substantial progress has been made in obtaining certain hybrids combining stem-rust resistance with resistance to other diseases and insects. In order to obtain such characters as quality, yield, winter hardiness, insect resistance, and other essential qualities, cooperative experiments with the Departments of Entomology and Agronomy have been conducted. It has been recognized by plant breeders in the Great Plains area, the hard winter wheat region, that cognizance must be taken of the fact that stem rust is a hazard to wheat production and must be considered in the future; that a variety, no matter how excellent it may be in other respects, will never be what it should be unless it has resistance to stem rust as well as to certain other diseases.

Loss of major importance from stem rust of wheat occurred in Kansas in 1935, 1937, 1938, and 1940, and for each of the first 3 of these a published report on the pertinent facts as related to the epiphytology of stem rust has been recorded ^{3/}. The 1940 record is given in the present report. When leaf rust, Puccinia triticea Eriks. [P. rubigo-vera tritici (Eriks. & Henn.) Carl.], was a factor during any of these years, recognition of this fact was made, as well as of any other disease or condition that was of importance in evaluating the loss from stem rust.

^{1/} Contribution No. 418 from the Department of Botany.

^{2/} The author gratefully acknowledges the help of John C. Miller, Extension Specialist in Plant Pathology, Kansas State College, who accompanied him on the field trip in which wheat fields were examined.

^{3/} Johnston, C.C., et al. The stem rust epidemic of 1935 in Kansas. Plant Disease Reporter Supplement 92, 1936.

Johnston, C.C., L.E. Melchers, and J.C. Miller. The wheat stem rust epidemic of 1937 in Kansas. Plant Disease Reporter Supplement 107, 1938.

Melchers, L.E., and C.C. Johnston. The wheat stem and leaf rust epidemics of 1938 in Kansas. Plant Disease Reporter Supplement 116, 1939.

Crop Conditions Leading Up to the Stem-rust Epidemic of 1940

In 1940 Kansas was still struggling with the prolonged drouth conditions that have prevailed in the State for the past 9 years. It was the lack of moisture in the fall of 1939 that set the stage for much of the trouble that was to follow in the spring of 1940 when stem rust appeared.

In June 1939, heavy rains fell and it appeared as if the row crops were off to a good start. The latter part of July, however, was dry, and hot weather and drying winds began to show their effect on corn and sorghums. Although heavy rains fell the first half of August, high temperatures, scorching winds, and lack of rain during the last of August, quickly dissipated what moisture remained. These same conditions were making it impossible to prepare land for a satisfactory seedbed for the 1940 wheat crop. Dry, hot weather prevailed in September over the entire State. No relief from the drouth occurred in October, November, and part of December. The soil was dry for several feet below the surface. The entire fall of 1939 was one of the warmest and driest in the records of the Weather Bureau in Kansas. Trees, shrubbery, pastures and alfalfa were severely damaged. The vast areas of wheat lands that had been disked or plowed were dry. A very small wheat acreage was planted on land that had enough moisture to give the crop a start, but each succeeding week saw the wheat deteriorating. In desperation thousands of acres were sown in late November and December in soil that was bone dry. A rain about the middle of November helped some of the wheat that had started to grow and aided some of the seed in other fields to germinate. Rains were not heavy, nor were they distributed over a wide enough area in the wheat belt to be of much benefit. This was especially true of the western quarter of the State. Towards the end of December snows fell in western Kansas to a depth of 1 to 6 inches and this, no doubt, gave some of the wheat a start, but they came too late, as will be shown later. Some farmers drilled wheat after the snow had fallen. Traveling in central and western Kansas in November and December, one was struck by the absence of anything green -- the fields were bare of growth. By the middle of December crop conditions were estimated as 35 percent of normal for wheat, probably the poorest prospect for that time of year in the history of the State. Temperatures remained abnormally high for that time of year, the lowest temperature at Manhattan up to December 24 being 16° F.

Following this, severe winter weather with some subzero temperatures occurred in January, the lowest being -11° on January 17. Farmers were still attempting to sow their wheat, whenever there was a break in the cold spell, although warnings had been given by the Agricultural Experiment Station that such a practice was futile.

Some improvement was observed in the wheat in April, but the crop estimate on April 1 was 59,400,000 bushels, the lowest in Kansas since 1917. Eastern Kansas wheat fields were fair to good. Conditions west of a line running north and south of Salina were poor. Much of the wheat in this area did not emerge until March and therefore could have little

prospect of maturing. April rainfall, however, for Kansas was normal, and May and June had normal or almost normal rainfall; parts of May were unusually cool, all of which favored a very late wheat crop. In May the crop was estimated at 72,000,000 bushels ^{4/}, and much of the late wheat had made what appeared, to many, a promising start and the prospects of a good crop.

During the last week in May a trip was made through southern Kansas by College officials, who reported that thousands of acres of wheat were from 2 to 3 weeks late. These fields and a large acreage in the western part of the State that were not so far along, were faced with 2 dangerous possibilities. If the weather were to remain cool with sufficient moisture to allow the wheat to make a crop, stem rust would no doubt destroy the wheat, and if abundant moisture did not fall and seasonable temperatures prevailed, this late crop would "burn up." As will be shown, stem rust caused excessive damage, not only to this large acreage of late wheat, but also to the balance of the crop in south-central Kansas, which was a week to 10 days late.

Climatic Conditions in Kansas as Affecting Stem-rust Development in 1940

An examination of figure 1 will show the daily precipitation and maximum and minimum temperatures for the period April 1 to July 30. During most of April and up to May 3, temperatures were too low for infection and spread of stem rust. This graph indicates that moisture was favorable for stem rust development throughout this period up to perhaps the middle of July, although the distribution of rainfall for the June 15 to July 24 period was not so favorable as for the other "rust years." During May and June, the days remained moderately cool, and this, together with the absence of hot, drying winds which generally prevail at this time of year, prevented excessive loss of moisture. Heavy dews were frequent during the critical periods.

As mentioned in a former publication ^{5/}, stem rust spores require, besides moisture, a minimum temperature not below 55-60° F. for their best development. If we accept 60° F. as the minimum temperature allowing abundant germination and infection to occur, figures 1 to 3 show some points of interest as compared with the epiphytology of stem rust in Kansas in 1935, 1937, and 1938. On April 2 and 3 (fig. 1) there was a short period favorable for infection and records show that moisture was sufficient. It is believed that some infection may have occurred at that time if spores were present in southern Kansas. They could have come from Mexico and Texas where rust was present in abundance at this time. But the minimum temperatures remained too low throughout April to allow stem-rust development in Kansas.

^{4/} The total wheat crop for Kansas 1940 according to the Bureau of Agricultural Economics is 123,848,000 bushels.

^{5/} Plant Disease Reporter Supplement 92. 1936.

The early part of the season (April) was apparently too cool for infection and spread of stem rust in Texas and Oklahoma; otherwise, very heavy losses might have occurred in the Plains area, especially in those regions of Oklahoma and Kansas where the wheat was 10 to 14 days late. It is believed this is the main reason that an epidemic of major importance in Kansas was escaped.

On April 15 and 28 the minimum temperatures approach the point favorable for infection but these short periods are probably of little consequence. Several prolonged, as well as short favorable "infection periods" from May 5 to June 12 are indicated in figure 1. It was during these periods that stem-rust infection and spread undoubtedly occurred and made way for the epidemic that followed.

When the period of May 15 to July 15, 1940 (figs. 1 to 3) is compared with other years, it will be found that favorable, prolonged minimum temperatures extended much further into June and July than ordinarily occurs in Kansas. After July 15, 1940, it is doubtful, however, whether stem rust spread to any extent, even in the late fields, since the maximum temperatures were too high. By that time most of the damage had occurred and the main crop was harvested.

It has been frequently observed and mentioned in the reports on stem-rust epiphytology in Kansas, that the critical period for stem-rust infection and spread in the wheat crop is from about May 15 to June 15 ^{6/}. This is well demonstrated by figures 2 and 3, in which the graphs show favorable infection periods for the period May 15 to June 15, 1935, 1937, 1938 and 1940. In 1940 there were only a few, rather long favorable infection periods which is more like the situation which prevailed during the 1937 epiphytotic, while in 1938, there were numerous very short periods. In 1935 the actual number of days favorable for infection was less than any of the other years mentioned.

The graphs show that the main, favorable infection periods were later in 1940 than in other years and continued into late June and the first two weeks of July. This is significant and helps to explain the outbreak of 1940. Just as important as the favorable environment of 1940 and the presence of spores, is the fact that the wheat crop in southern, central, and parts of eastern Kansas was late and stem rust had ample time to spread and injure the crop. This, of course, does not include the extremely late wheat from seed that germinated after December; most of these fields were a complete failure because of rust and hot weather. As already stated north-central Kansas had wheat free of stem-rust damage. This was also true of eastern Kansas where fields were not late and where Kawvale or Iobred was extensively grown.

^{6/} Plant Disease Reporter Supplement 107: 33-94. 1938.

Plant Disease Reporter Supplement 116: 51-68. 1939.

Melchers, L. E. Climate in relation to plant diseases. Trans. Kans. Acad. Sci. (In press).

Isolated areas in eastern Kansas planted to fields of soft wheat of the susceptible varieties were damaged by stem rust, but such acreages were not large. Osage County has the largest loss reported in eastern Kansas.

The Northward Spread of Stem Rust

In 1940, as in 1935, 1937, and 1938, there was every indication that a northward movement of stem-rust spores took place. On May 22, stem rust of wheat was reported by C. O. Johnston at Medford, Oklahoma. From this point south, through central Oklahoma, stem rust increased in prevalence. About this time stem rust was extremely heavy in north-central Texas and in south-central Texas at College Station. Very heavy rains had fallen over this entire area and there was every indication that stem rust would be prevalent and furnish abundant inoculum for the States to the north. Oklahoma had thousands of acres of late wheat which made the situation potentially dangerous. In this connection, it is of interest to examine the reports of the findings in spore traps exposed at Manhattan, Clay Center, and Salina, Kansas (table 1). These places are indicated in figure 4. Of the three stations reported, the heaviest rust spore loads of the air are carried by the wind passing over Clay Center, Kansas. Although no detailed readings for stations in western Kansas are available and only that of Manhattan for the eastern part of the State is given, yet circumstantial evidence leads the writer to believe that probably fewer spores occurred in the air over the eastern and western third of the States for the same dates. It has always been apparent that the heaviest spore loads coming from the southern States enter south-central Kansas and then proceed northward, gradually spreading out in a fan-shaped area as they approach the center of Kansas.

No records were taken of the rust spores in the air around the last of April or up to May 8 (table 1), although such information would be highly desirable each year. Favorable infection periods occurred from May 5 to 8 and if spores were present, infection no doubt did occur. On May 9 readings at Manhattan showed no spores present, yet if readings had been taken at Salina and Clay Center on that date, spores might have been found. It seems certain that spores must have been present in the air in Kansas at this time or earlier, because of the infected wheat reported by several persons and in various areas of southern Kansas on May 26-28. It is believed that wheat in a vast area of Kansas, as well as Oklahoma, may have been infected as early as May 1 to 15 from spores carried by southerly winds. The only readings made at the 3 stations on one date, May 12, however, do not indicate the presence of rust spores, but a reading on May 15 at Manhattan shows 480 spores per square foot per 24 hours. By June 8, stem rust in wheat was found in all fields observed in southern Kansas, and heavy infection was appearing on the stems of the plants in Sumner and Sedgwick Counties, and in areas of Oklahoma south of these Counties. North of Sedgwick County, only primary stem-rust lesions were observed on June 8.

It is of interest to note what the stem-rust conditions were in the Dallas-Sherman, Texas, area at the same time. On June 2 and 3, E. C. Stakman observed that stem rust was exceedingly heavy with 20 percent rust on the necks of the wheat plants. Some fields had 60 percent rust on the stems and were about a week from harvest.

Table 1. -- Stem rust spore counts, Kansas, 1940 ^{a/}

Date	Number of stem rust spores per sq. ft. per 24 hours ^{b/}		
	Salina	Clay Center	Manhattan
May 9			0
12	0	0	0
15	480		
19			480
21		22,560	
23			0
25			480
29		480	
31			0
June 3	13,440	2,580	1,440
4	1,440	9,600	5,280
5	480	3,840	480
6		7,200	
7			960
10		480	480
11			480
13	480		480
14	30,720		10,500
15		33,120	9,500
16		480	
17		1,440	4,800
18		71,520	26,880
19		104,640	12,240
20		49,920	
21		31,680	
24		76,800	
25		18,240	

^{a/} These counts were made by Max C. Markley, Cargill, Inc., Minneapolis, Minnesota.

^{b/} Microscopic slides, coated with an adhesive, are exposed to the air in a prescribed manner and location. Each exposure is for a 24-hour period.

The importance of this area and other fields in northern Texas to the States to the north lay in the vast supply of inoculum they furnished. The rust was in the uredial stage in Texas on June 2 and 3 and some fields were so heavily rusted as to appear distinctly discolored when observed from a distance. On June 2 and 3 moderate to strong winds were blowing from the south, which, no doubt, were carrying rust spores into Oklahoma and Kansas. On those dates a note on weather conditions at Manhattan shows: June 2, "Warm, bright day following heavy dew and high humidity. Strong southerly winds blew all day." June 3, "Strong southerly winds all day. Slight dew, hot, relative humidity 50%." The spore trap readings for June 3 to 6 are extremely interesting in that the numbers are very high, showing conclusively that the winds were loaded with stem rust spores. The minimum temperatures for these dates were favorable, moisture was sufficient for infection as 1.5 inches of rain occurred on June 7. This unquestionably precipitated a large amount of inoculum on the Kansas wheat. On June 14 the heaviest spore loads of the season were being reported from all 3 Kansas stations and the readings taken from June 14 to June 25 show a uniformly heavy spore load in the air. From June 14 to about June 30, temperature and moisture were very favorable and stem rust was spreading rapidly over central and parts of eastern Kansas. The amount of infection that occurred in June gave a substantial start which spread into the late wheat maturing in the first 2 weeks of July.

Several other points of interest with respect to the stem-rust epiphytotic in 1940 and the development of the wheat crop should be mentioned. As already stated, much of the crop was 10 to 14 days later than normal. This does not consider the large acreage in which the seed did not germinate until December or later and in which the wheat heads were in flower about June 15 to 20. The lateness of all this wheat made conditions ideal for the stem rust epiphytotic. The wheat crop in the north-central counties was 2 weeks in advance of the crop in the southern part of the State, a very unusual situation. The crop was ripening about June 15 in the north-central area and was harvested soon thereafter. No stem-rust damage occurred in that area; in fact, little stem rust was present. But on this same date stem rust was severe in central and southern Kansas.

Route Followed in Stem-rust Survey, 1940

Mr. John O. Miller, extension plant pathologist, and the writer made a trip through central Kansas where stem rust was most likely to become severe and where the crop was late. This route is shown in figure 4, the trip being made on June 12-14. Other areas of the State were visited on earlier and later dates by college officials, but those places are not indicated on the map. Mr. John O. Miller and the author examined hundreds of fields, and notes were taken on the amount and location of stem rust on plants, the condition of the field, days remaining before harvest, and estimated damage. In August letters were written to County Agents, who in turn questioned millers and farmers in

their counties in order to obtain a cross-section opinion for their county as to how much loss occurred. The figures in figure 4 represent the estimates of loss expressed in the several counties. Those counties (fig. 4) which reported losses, represent the area which produced 63 percent of the entire wheat crop of Kansas in 1940.

Magnitude and Types of Losses in 1940

Losses varied considerably according to locality and crop conditions and it is difficult to reach a single figure on the loss for the State. An estimate of an average loss of 7 percent for the State has been made and is believed to be fairly accurate. The heaviest loss occurred in those counties in the southern part of central Kansas indicated in figure 4. This area had considerable wheat that was very late and succulent when stem rust was most severe. Some of this wheat was not harvested and other fields produced light-weight grain of little value. The loss in this area was solely that resulting from stem rust and not heat injury. Lyon, Franklin, and Osage Counties in the central part of eastern Kansas had considerable injury. Other than these 2 areas, the infection was only moderate, light, or trace as indicated in figure 4, the numbers indicating percent loss.

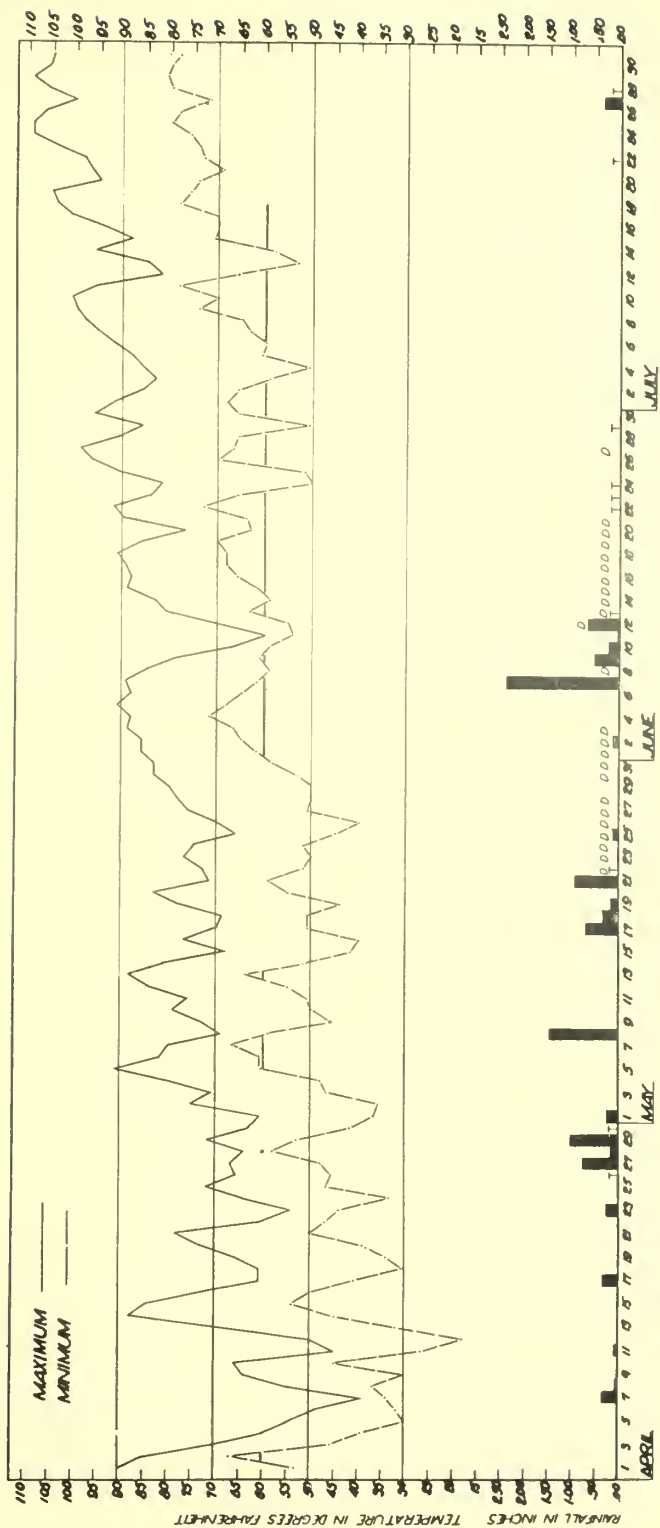
As in other recent epiphytotics, the loss from stem rust consisted of actual reduction in yield, reduced grade due to shrivelling, and abandoned fields. No figures are available for the latter, but it is known that most fields of very late wheat were a total loss.

Leaf rust of wheat Puccinia triticina, [P. rubigo-vera tritici] was not a factor in the 1940 wheat crop and no appreciable loss could be assigned to it. In fact none of the other diseases, such as black chaff, basal glume blotch, Septoria glume blotch, or Septoria nodorum on the nodes, foot and root rots, etc., that complicated the estimated losses from stem rust in 1938, was present in sufficient amounts in 1940 to make the matter of estimates on stem-rust loss confusing. On a basis of 7 percent loss, the reduction in yield from stem rust in Kansas was about 9,321,892 bushels.

Varietal Susceptibility to Stem Rust

Kansas does not have a good commercial hard winter wheat that is resistant to stem rust. Kanred, Turkey, and Tenmarq were heavily attacked in some fields although Kanred does show a little more resistance than the other 2 varieties. Among the other hard wheats, Early Blackhull and Blackhull had very little stem rust. Kawvale and Iobred in eastern Kansas were definitely outstanding in their field resistance and showed no appreciable damage. Wherever fields of Fulcaster, Harvest Queen, and Michigan Wonder were encountered, the plants were heavily rusted. Although Iobred, Kawvale, Early Blackhull, Blackhull, and Kanred are recognized as possessing some resistance to stem rust, none has the degree of resistance

necessary to protect the Kansas wheat crop from severe losses when stem rust becomes severe. For this reason, increased efforts have been and are being devoted to the matter of obtaining hybrids that are resistant to stem rust and that possess all other agronomic qualities necessary in this region. Promising hybrids in the F_3 to F_8 generations are being subjected to annual artificial epiphytotics of stem and leaf rust in the Botany rust nursery. It is hoped that before long Kansas will be growing a satisfactory rust-resistant, hard winter wheat.



MAXIMUM AND MINIMUM AIR TEMPERATURES, RAINFALL AND PERIODS FAVORABLE FOR THE DEVELOPMENT OF STEM RUST AT MANHATTAN, KANSAS
FROM APRIL 1st TO JULY 30, 1940

FIG. 1

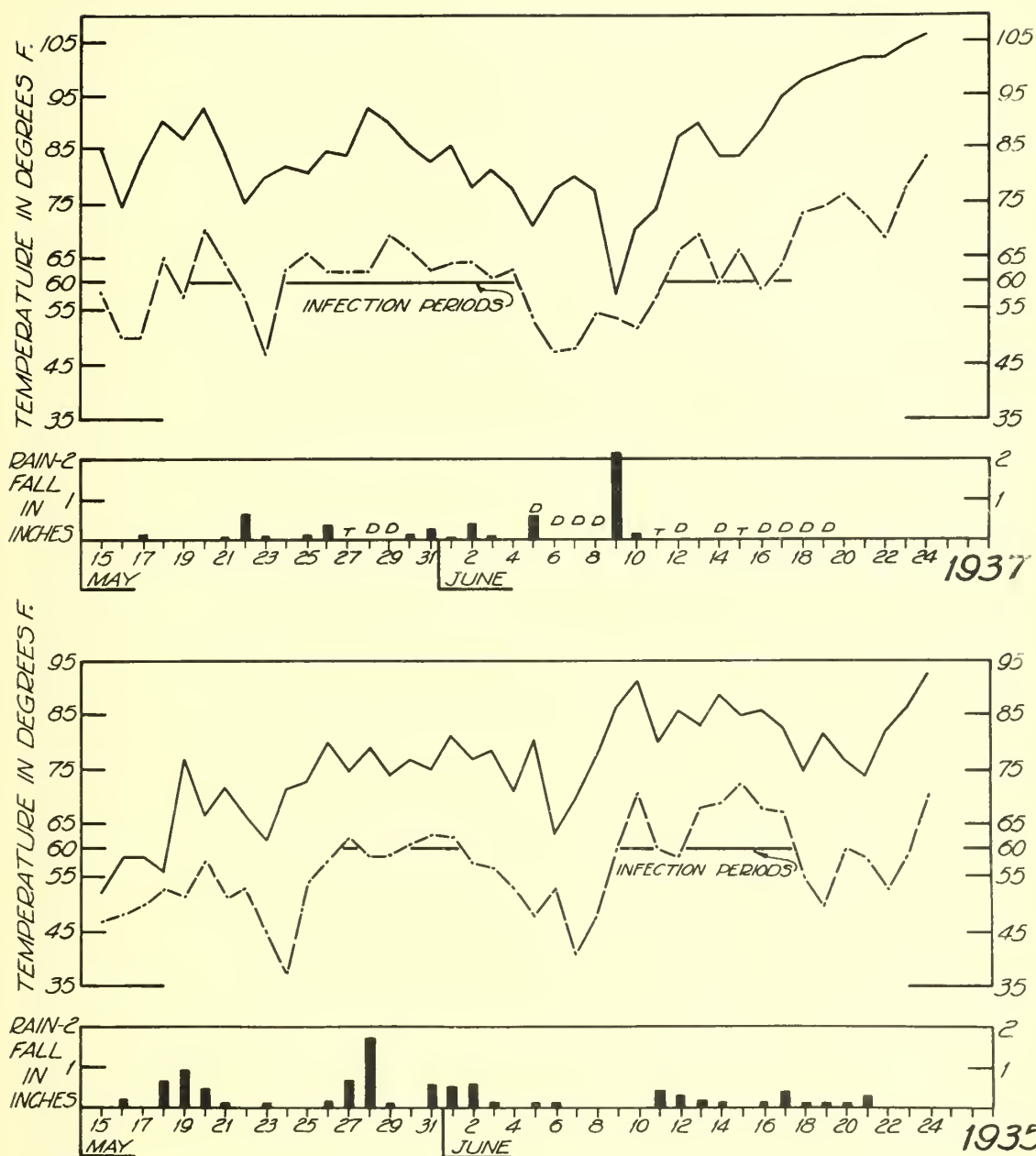


FIG. 2 MAXIMUM AND MINIMUM AIR TEMPERATURES, RAINFALL AND PERIODS FAVORABLE FOR THE DEVELOPMENT OF STEM RUST AT MANHATTAN, KANSAS, FROM MAY 15 TO JUNE 24, 1935, AND 1937.

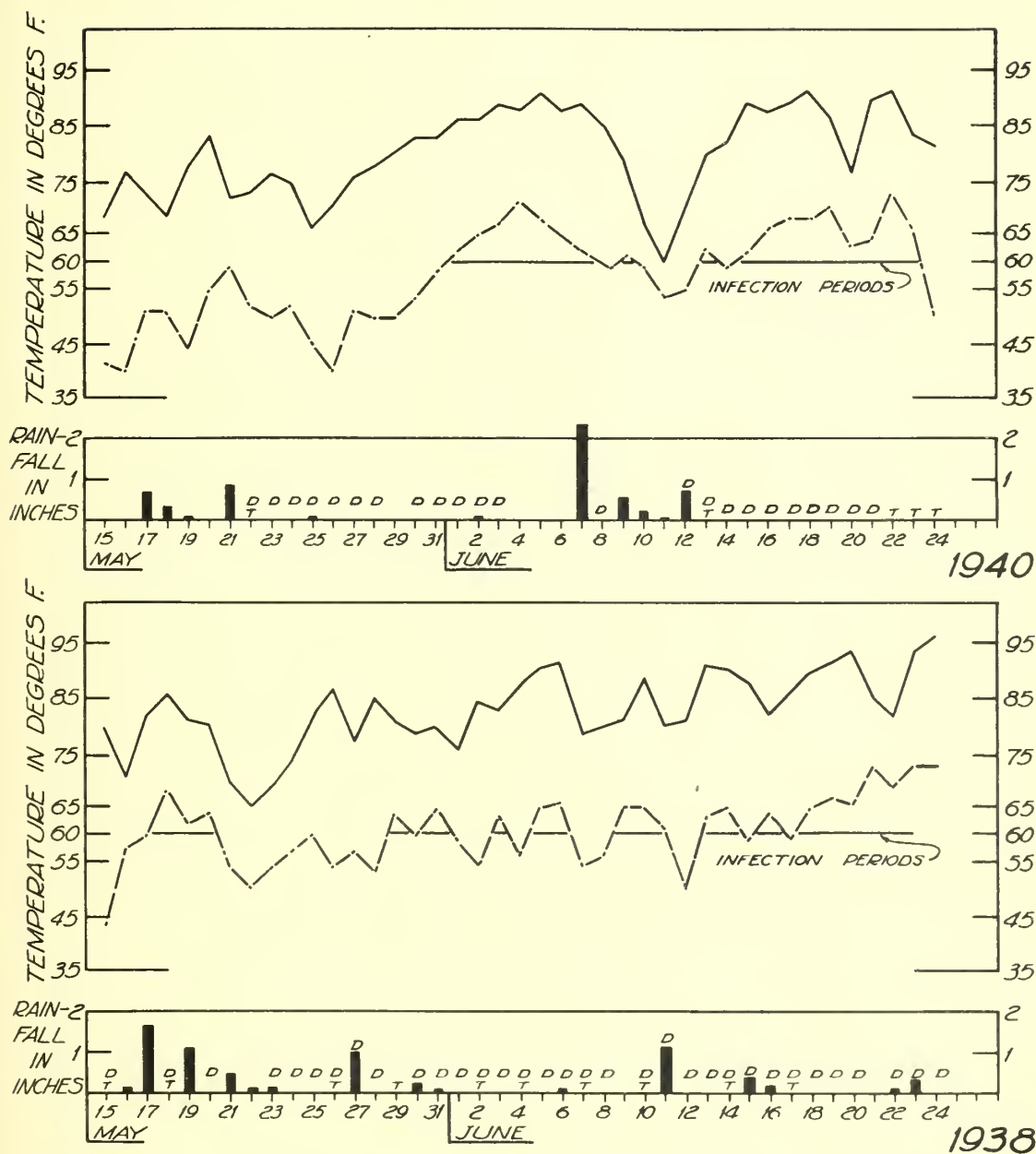


FIG. 3 MAXIMUM AND MINIMUM AIR TEMPERATURES, RAINFALL AND PERIODS FAVORABLE FOR THE DEVELOPMENT OF STEM RUST AT MANHATTAN, KANSAS, FROM MAY 15 TO JUNE 24, 1938, AND 1940.

[illegible]

Areas where heaviest stem rust damage occurred.

Fig. 4.

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THE PLANT DISEASE REPORTER

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INDEX TO SUPPLEMENTS 130 - 132

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THE PLANT DISEASE REPORTER

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Prepared by Nellie W. Nance

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Fischer, George W., and Moses N. Levine. Summary of the recorded data on the reaction of wild and cultivated grasses to stem rust (Puccinia graminis), leaf rust (P. rubigo-vera), stripe rust (P. glumarum), and crown rust (P. coronata) in the United States and Canada. Supplement 130:1-30.

Miller, Julian H. The Ascomycetes of Georgia. Supplement 131: 31-93.

Melchers, L. F. The wheat stem rust epidemic of Kansas in 1940. Supplement 132:95-103. 4 figures.

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- Salix nigra*, *Diatrypella quercina*, 64.
Eutypella fraxinicola, 65.
Fracchiæa heterogonea, 78.
Hysterium magnosporum, 51.
Lophiostrema vagabundum, 54.
Mollisia sp., 42.
Penzigia frustulosa, 61.
Teichospora ohimensis, 86.
Valsa ambiens, 72.
Valsa decorticans, 73.
Valsa pallida, 73.
tristis, *Rhytisma salicinum*, 44.
Sambucus spp., *Potryosphaeria ribis*, 76.
canadensis, *Diaporthe megalospora*, 68.
Diaporthe sociabilis var. *sambuci*, 69.
Didymosphaeria epidermidis, 77.
Dothidea collecta, 87.
Eutypella microcarpa, 66.
Hypoxylon rubiginosum, 60.
Stictis radiata, 40.
Ophiobolus sp., 84.
Saponaria officinalis, *Didymella* sp., 77.
Leptosphaeria comatella, 79.
Leptosphaeria doliolum, 79.
Sarracenia flava, *Mollisia* sp., 42.
Mycosphaerella sarraceniae, 90.
Sassafras variifolium, *Daldinia vernicosa*, 57.
Hypoxylon microplacum, 59.
Hypoxylon sassafras, 60.
Hypoxylon sclerophaeum, 60.
Mycosphaerella sassafras, 90.
Schizoxylon insigne, 40.
Schrankia uncinata, *Diaporthe* sp., 69.
Scirpus georgianus, *Lophiostoma arundinis*, 54.
Mollisia scirpina, 41.
Ophiobolus acuminatus, 83.
Scleroderris, 48.
Sclerotinia, 48.
Scoleconectria, 55.
Scorias spongiosa, 38.
Secale cereale, *Pyrenophora relicina*, 85.
Septoria glume blotch, wheat, 102.
nodorum, wheat, 102.
Sericocarpus asteroides, *Diaporthe linearis*, 68.
Lophiostoma caulium, 54.
Mycosphaerella sp., 92.
linifolius, *Pyrenopeziza* sp., 43.
Setaria glauca, *Ophiobolus acuminatus*, 83.
Rhopographus clavisporus, 85.
Silphium spp., *Diaporthe arctii*, 68.
Hypoderma commune, 43.
dentatum, *Leptosphaeria coniothyrium*, 79.
Smallanthus uvedalia, *Diaporthe arctii*, 68.
Leptosphaeria sp., 80.
Metasphaeria sp., 83.
Smilax spp., *Anthostomella sepelibilis*, 63.
Eutypella sepulta, 66.
Cloniopsis ellisii, 50.
Mycosphaerella smilacicola, 90.
Mylocopron smilacis, 53.
glauca, *Acrospermum* sp., 76.
Stictis radiata, 40.
herbacea, *Apiospora montagnei*, 74.
laurifolia, *Anthostomella* sp., 63.
Didymosphaeria sp., 78.
Eutypa sp., 65.
Eutypella microcarpa, 66.
Glonium curtisii, 50.
Lophodermium sp., 44.
Ophiobolus sp., 84.
Solanum melongena, *Diaporthe arctii*, 68.
Metasphaeria sp., 83.
Solidago spp., *Acrospermum foliicolum*, 75.
Anthostomella sp., 63.
Diaporthe linearis, 68.
Elsinoë solidaginis, 35.
Hypoderma commune, 43.
Leptosphaeria subconica, 80.
Lophiostoma caulium, 54.
Mycosphaerella sp., 92.
Stictis radiata, 40.
altissima, *Helotium* sp., 47.
Schizoxylon insigne, 40.
caesia, *Leptosphaeria* sp., 80.
Lophiostrema vagabundum, 54.
conferta, *Diaporthe arctii*, 68.
odora, *Physalospora obtusa*, 84.
serotina, *Leptosphaeria mesoedema*, 80.

- Solidago serotina*, *Ophiobolus* sp., 84.
Sonchus oleraceus, *Diaporthe arctii*, 68.
Mollisia atrata, 41.
Ophiobolus fulgidus, 83.
Sorbus americana, *Fracchiacea callista*, 78.
Sphaerangium, 45.
Sphaerognomonia, 92, 93.
Sphaeropeziza arundinariae, 45.
Sphaerostilbe coccophila, 55.
Sphaerotheca, 37.
Spiraea spp., *Physalospora obtusa*, 84.
Stachys tenuifolia, *Lophiostoma caulium*, 54.
Metasphaeria sp., 83.
Staphylea trifolia, *Eutypella fraxinicola*, 65.
Mycosphaerella staphylina, 91.
Nectria atrofusca, 54.
Steironema ciliatum, *Leptosphaeria steironematis*, 80.
Metasphaeria sp., 83.
Phialea dearnessii, 47.
Physalospora obtusa, 84.
Stereum lobatum, *Hymomyces aurantius*, 57.
Stictis, 40.
Stigmatea sclerotidea, 53.
Stizolobium deeringianum, *Mycosphaerella cruenta*, 82.
Styrax americana, *Metasphaeria subcutanea*, 83.
grandifolia, *Mycosphaerella punctiformis*, 90.
Symplocos tinctoria, *Mycosphaerella* sp., 92.
Syringa vulgaris, *Microsphaera alni*, 36.
- T
- Taphrina*, 51, 52.
Taraxacum officinale, *Sphaerotheca humuli*, 37.
Taxodium distichum, *Lachnum virgineum*, 46.
Metasphaeria cavernosa, 82.
Tecoma radicans, *Physalospora* sp., 85.
Physalospora obtusa, 84.
Valsa decorticans, 73.
Teichospora chiensis, 86.
Thalictrum macrostylum, *Didymosphaeria thalictri*, 78.
Thuja occidentalis, *Mollisia* sp., 42.
Physalospora obtusa, 84.
Pithya cupressina, 39.
Thyronectria, 55.
Tilia heterophylla var. *michauxii*,
Apiosporella sp., 76.
Diatrypella favacea, 64.
Diatrypella quercina, 64.
Eutypella fraxinicola, 65.
Fracchiacea heterogenea, 78.
Hercospora tiliac, 71.
Massariella curreyi, 81.
Massariella curreyi var. *americana*, 82.
Massariovalsa sudans, 71.
Mycosphaerella punctiformis, 90.
Nectria cinnabarina, 54.
Pyrenopeziza minuta, 42.
Sphaerangium sp., 45.
Valsa ambiens, 72.
Valsa decorticans, 73.
truncata, *Leptomassaria simplex*, 79.
Trichodopsis canata, 86.
Trichoglossum, 49.
Trichosphaeria, 86.
Tridens flavus, *Apiospora montagnei*, 74.
Leptosphaeria culmorum, 79.
Phyllachora sp., 75.
Trifolium spp., *Dothidella trifolii*, 87.
Erysiphe polygoni, 36.
Pseudopeziza briosiana, 92.
Tripsacum dactyloides, *Claviceps tripsaci*, 56.
Triticum aestivum, *Erysiphe graminis*, 36.
Pyrenopeziza relicina, 85.
Tryblidiella rufula, 49.
Tsuga canadensis, *Conangium balsameum*, 46.
Dimerosporium tsugae, 53.
Propolis leonis, 45.
Tympanopsis eumphala, 86.
Typha latifolia, *Guignardia* sp., 87.

Typha latifolia, *Lophodermium*
typhinum, 44.
Mycosphaerella typhae, 91.

U

Ulmus spp., *Acrospermum compressum*,
 75.
Diatrypella favacea, 64.
Eutypella fraxinicola, 65.
Hysteropatella prostii, 48.
Mycosphaerella sp., 92.
Mycosphaerella punctiformis,
 90.
Physalospora obtusa, 84.
alata, *Phyllactinia corylea*, 36.
Sphaerostilbe coccophila, 55.
Uncinula macrospora, 37.
Valsa ambiens, 72.
americana, *Diatrypella subfulva*,
 64.
Didymosphaeria sp., 78.
Eutypella tumida, 66.
Gnomonia ulmea, 70.
Mycosphaerella ulmi, 91.
fulva, *Massaria ulmi*, 81.
parvifolia, *Eutypella scoparia*, 66.
serotina, *Dasyscypha pulveracea*,
 47.
Uncinula, 37.
Uniola spp., *Apiospora montagnei*, 74.
latifolia, *Leptosphaeria culmicola*,
 79.
Pleospora sp., 85.
laxa, *Phyllachora* sp., 75.
Urnula craterium, 39.
Urosporella americana, 86.

V

Vaccinium spp., *Hysterium angustatum*,
 50.
Meliola nidulans, 37.
Mycosphaerella punctiformis, 90.
arborescens, *Ophiodothella vaccinii*,
 72.
Valsa decorticans, 73.
elliottii, *Glonium curtisii*, 50.
vacillans, *Lophodermium maculare*,
 44.
Microsphaera vaccinii, 36.

Valsa, 72, 73.
Nectria episphaeria, 55.
Valsaria, 73, 74.
Valsella, 74.
Velutaria rufo-olivacea, 48.
Venturia, 86.
Verbena sp., *Erysiphe cichoracearum*, 35.
Verbesina spp., *Diaporthe arctii*, 68.
Leptosphaeria mesoedema, 80.
Pleospora vulgaris, 85.
occidentalis, *Leptosphaeria coma-*
tella, 79.
virginica, *Leptosphaeria subconica*,
 80.
Vernonia acaulis, *Diaporthe arctii*, 68.
glaucula, *Leptosphaeria* sp., 81.
Metasphaeria sp., 83.
noveboracensis, *Hypoderma commune*,
 43.
Ophiobolus fulgidus, 83.
Vibrissia truncorum, 40.
Viburnum spp., *Massaria plumigera* var.
tetraspora, 81.
Physalospora obtusa, 85.
Schizoxylon insigne, 40.
orientale, *Glonium* sp., 50.
prunifolium, *Didymosphaeria* sp., 78.
rufidulum, *Diaporthe viburni*, 69.
Didymosphaeria epidermidis, 77.
Hypoxylon rubiginosum, 60.
Leptosphaeria vagabunda, 80.
Mycosphaerella punctiformis, 90.
semitomentosum, *Eutypella fraxini-*
cola, 65.
Vigna sinensis, *Erysiphe polygoni*, 36.
Mycosphaerella cruenta, 88.
Vitis spp., *Guignardia bidwellii*, 87.
Physalospora obtusa, 85.
baileyana, *Leptosphaeria vagabunda*,
 80.
Pleospora vulgaris, 85.
labrusca, *Hypoxylon hypophlaeum*, 58.
Mycosphaerella personata, 89.
Uncinula necator, 37.
rotundifolia, *Eutypella fraxinicola*,
 65.
Glonium clavisporum, 50.
Glonium curtisii, 50.
Herpotrichia pezizula, 78.
Hypoxylon tinctor, 60.
Hysterographium flexuosum, 51.

Vitis rotundifolia, *Mollisia*
cinerea, 41.
Rosellinia aquila, 61.
Schizoxylon insigne, 40.
Valsa decorticans, 73.

X

Xanthium canadense, *Diaporthe*
arctii, 68.
Erysiphe cichoracearum, 35.
Leptosphaeria comatella, 79
Ophiobolus acuminatus, 83.
Ophiobolus anguillides, 83.
Xylaria, 62.

Y

Yucca aloifolia, *Pleospora thümeniana*,
 85.
filamentosa, *Diaporthe arctii*, 68.
Lophiostoma caulium, 54.

Z

Zea mays, *Didymosphaeria graminicola*, 78
Gibberella zeae, 54.
Rhopoglyphus zeae, 85.
Stictis radiata, 40.
Zenobia pulverulenta, *Ophiodothella*
vaccinii, 72.
Zignoella pulviscula, 86.
Zinnia elegans, *Erysiphe cichoracearum*,
 35.

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A Revised Check List of the Parasitic Fungi
on Cereals and Other Grasses in Oregon

March 1, 1942



The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.



A REVISED CHECK LIST OF THE PARASITIC FUNGI ON CEREALS
AND OTHER GRASSES IN OREGON^{1/}

Roderick Sprague^{2/}

Plant Disease Reporter
Supplement 134

March 1, 1942

The first preliminary list of the diseases of cereals and grasses in Oregon^{3/} was issued in 1935 and additions^{4/} were added in 1937. These two lists are here combined together with further additions.

Oregon is well adapted to the growing of both cereals and grasses. The State is roughly divided by the Cascade Range into the humid western portion and the drier, semi-arid eastern region. The western portion is again partitioned into a narrow, very humid coastal strip flanked by the low Coast Range dividing the coast area from the wide Willamette Valley where winter rainfall is heavy and summer weather dry. Northward the Willamette drains into the Columbia River which breaks through the Cascade Range from the east. South of the Willamette Valley is a rugged area of valleys and hills extending to the Siskiyou Mountains on the California border. Eastern Oregon is a high plateau of sagebrush and grassland, with the eastern portion featured by the conifer-covered Blue Mountains and granitic Wallowa Mountains. Wheat is extensively grown in central Oregon, and in the vicinity of the Blue Mountains in Union and Umatilla Counties it is the major crop.

Diseases of grasses in Oregon are found throughout the State, but the most serious troubles occur in the humid coastal strip or, during the mild winter months, in the Willamette Valley. The native dry land blue-grasses and bunchgrasses are parasitized by a number of fungi, but the dry season which comes after the spring rains cease is, in general, unfavorable for the development of grass diseases in the interior country. Certain rusts, smuts, rootrots, and powdery mildews, however, are sometimes abundant.

This list is for the purpose of furnishing a ready reference to all known diseases of cereals or grasses in Oregon. During recent years there has been increasing interest in the long-neglected group of grass diseases. While it is realized that many of the fungi listed in this article cannot, from a practical standpoint, be considered in a control program, it is

^{1/} Cooperative investigations between the Divisions of Cereal Crops and Diseases and Forage Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Oregon Agricultural Experiment Station, contribution from the Department of Botany.

^{2/} Associate Pathologist, Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture.

^{3/} A preliminary check list of the parasitic fungi on cereals and other grasses in Oregon. Plant Disease Reporter 19:156-186. 1935.

^{4/} Additions to the check list of the parasitic fungi on cereals and other grasses in Oregon (1935-37). Plant Disease Reporter 21:412-422. 1937.

important that a relatively complete list be assembled. A great deal of study must eventually be made to determine their host range, ecology and, where destructive, their control. As mentioned above, the diseases of grasses in the western portion of Oregon, particularly those of bent grasses, need study as they are destructive.

The writer is indebted to all of his colleagues who aided in the earlier lists. C. R. Orton determined the species of Phyllachora. Several of the grasses collected recently were identified by Agnes Chase and others by Helen Gilkey and Garland Powell. George Fischer determined certain species of smuts and rusts.

In citing authority for inclusion of the various fungi in this list, the writer wherever possible has again referred to representative collections in the Mycological Collections of the Department of Botany, Oregon State College, Corvallis, Oregon. Otherwise he has referred to specific references in reliable texts or, in a few cases, he has cited the fungi as having been seen and determined but collections not preserved. The collections at Corvallis now contain several thousand specimens of these fungi on Gramineae. A large number of duplicates have been sent to the Mycological Collections of the Bureau of Plant Industry, Washington, D.C., while representative collections also have been sent to Washington State College, Pullman, Washington, and to the University of Idaho, Moscow, Idaho.

The present list includes 677 citations of fungi on separate hosts.

Hitchcock (5) was again followed in classification of the grasses and cereals. Varieties except in rare instances were not segregated and the polymorphic group Bromus carinatus, B. marginatus, and B. polyanthus has been included under the one name, B. carinatus.

LIST OF FUNGI BY HOST PLANTS

Host and fungus or disease		Where found	Literature or specimen a/
Latin name	Common name		
JOINTED GOATGRASS			
AEGILOPS CYLINDRICA Host. Cercospora herpotrichioides Fron	Cercospora foot rot	Union County	(14)
LITTLE GOATGRASS			
AEGILOPS OVATA L. Cercospora herpotrichioides Fron	Cercospora foot rot	Union County	(14)
Puccinia rubigo-vera tritici (Eriks. & Henn.) Carl.	Leaf rust	b/	(2)
BARBED GOATGRASS			
AEGILOPS TRIUNCFALIS L. Cercospora herpotrichioides Fron	Cercospora foot rot	Union County	(14) 10,210
CRESTED WHEATGRASS			
AGROPYRON CRISTATUM (L.) Gaertn. Claviceps purpurea (Fr.) Tul. Epicoccum purpurascens Ehrbg. Fusarium culmorum (W. G. Sm.) Sacc. F. oxysporum Schl. Puccinia glumarum (Schm.) Eriks. & Henn. Ustilago hypodytes (Schl.) Fr.	Ergot Head mold Root rot Secondary pink root Stripe rust Stem smut	Astoria in plots Astoria in plots Wasco County Wasco & Sherman Co. Moro Exp. Sta., Union	2393 10,495 c/ c/ 7530 Fischer's Collections

a/ Numbers in parentheses refer to literature citations at end of text; other numbers not in parentheses refer to specimen numbers in the mycological herbarium of the Department of Botany, Oregon State College, Corvallis, Oregon

b/ Information lacking.

c/ Pure culture isolations made in Oregon by the writer, 1929-40.

AGROPYRON DASYSTACHIUM (Hook.) Scribn. (<i>A. lanceolatum</i> Scribn. & Smith) <i>Ascospora graminis</i> Lind. <i>Erysiphe graminis</i> DC. <i>Puccinia graminis</i> Pers. <i>P. rubigo-vera</i> (DC.) Wint. <i>Rhynchosporium secalis</i> (Cud.) J.J. Davis <i>Scolecotrichum graminis</i> Fckl.	THICKSPIKE WHEATGRASS (Downy wheatgrass) Mold Powdery mildew Stem rust Leaf rust Leaf scald Leaf stripe	Biggs, Celilo Wasco & Sherman Co. Sherman County Redmond, Celilo Wasco County Jackson, Sherman and Wasco Counties	10,809 10,224 (2, 7) (2, 7) 10,054 10,059
Selenophoma donacis (Pass.) Sprague & Johnson var. <i>stomaticola</i> (Bauml.) Sprague & Johnson	Selenophoma speckle	Celilo Falls	6
AGROPYRON INERME (Scribn. & Smith) Rydb. (<i>A. spicatum inerme</i> Scribn. & Smith) <i>Erysiphe graminis</i> DC. <i>Scolecotrichum graminis</i> Fckl. <i>Septoria elymi</i> Ell. & Ev.	BEARDLESS WHEATGRASS Powdery mildew Leaf stripe Leaf mottle	Rufus Klamath Falls & Rowena Rowena	10,928 10,056 c/ 10,378
AGROPYRON TRACHYCAULUM (Link) Malte (<i>A. tenerum</i> Vasey, <i>A. pauciflorum</i> (Schw.) Hitch.) <i>Claviceps purpurea</i> (Fr.) Tul. <i>Erysiphe graminis</i> DC. <i>Puccinia graminis</i> Pers. <i>P. montanensis</i> Ell. <i>Scolecotrichum graminis</i> Fckl. <i>Ustilago striaeformis</i> (Westd.) Niessl	SLENDER WHEATGRASS Ergot Powdery mildew Stem rust Brown stripe rust Leaf stripe Stripe smut	Union Andrews Union Union Upper Klamath Marsh Exp. Sta., Union	10,693 (W.A.F., 164)d/ 10,692 10,695 527 Fischer's Coll.
AGROPYRON REPENS (L.) Beauv. <i>Bacterium</i> sp. <i>Claviceps purpurea</i> (Fr.) Tul. <i>Helminthosporium tritici-repentis</i> Died.	QUACKGRASS Leaf rot Ergot Brown leaf speckle	Corvallis Hood River Alsea Valley	10,117 10,697 10,752

Puccinia rubigo-vera (DC.) Wint.	Leaf rust	Warrenton	10,312
Rhynchosporium secalis (Oud.) J.J.Davis	Leaf scald	Corvallis	10,117
Septoria elymi Ell. & Ev.	Leaf mottle	Silver Creek Falls & 6 miles N. of Eugene	10,282 465
Ustilago hypodytes (Schl.) Fr.	Stem smut	Hood River	336
AGROPYRON SMITHII Rydb.	WESTERN WHEATGRASS		
Scolecotrichum graminis Fekl.	Leaf stripe	Upper Klamath Lake	10,057
Ustilago hypodytes (Schl.) Fr.	Stem smut	Heppner	10,164
AGROPYRON SPICATUM (Pursh.) Scribn. & Smith	BLUE BUNCH WHEATGRASS		
Cladosporium herbarum Lk.	Leaf mold	18 mi. east of Arling- ton	157
Erysiphe graminis DC.	Powdery mildew	Friend	873
Puccinia glumarum (Schm.) Eriks. & Henn.	Stripe rust	Pendleton	Herb., Univ. of Idaho
P. pattersoniana Arth.	Patterson's rust	E.Oreg.	(2, 7)
P. rubigo-vera (DC.) Wint.	Leaf rust	Benton County	(2, 7)
Scolecotrichum graminis Fekl.	Leaf stripe	Fossil	10,808
Septoria infuscans (Ell. & Ev.) Sprague	Brown leaf blotch	John Day Canyon	658
Urocystis agropyri (Preuss.) Schroet.	Smut	Wasco County	27,001
Ustilago macrospora Desm.	Smut	-----	(4)
AGROPYRON SUBSECUNDUM (Link) Hitchc. (A. caninum Aut. Auth.)	BEARDED WHEATGRASS		
Puccinia montanensis Ellis	Brown stripe rust	Hood River	10,252
AGROSTIS AEQUIVALVIS (Trin.) Trin.	BENT GRASS		
Puccinia coronata Corda	Crown rust	Silver Creek Park	330
AGROSTIS ALBA L.	REDTOP		
Claviceps purpurea (Fr.) Tul.	Ergot	Clatsop County	10,317
Darluca filum (Biv.) Cast.	Parasite on crown rust	Astoria	10,735
Mastigosporium rubricosum (Dearn. & Barth.) Sprague	Red eye spot	Coast region	10,586

Phycomycete Indet. <u>e/</u>	Purple leaf speckle	Corvallis, Wells	799
Puccinia coronata Corda	Crown rust	W. Oregon	(2, 7)
P. graminis Pers.	Stem rust	Astoria	10,313
Rhizoctonia solani Kühn	Leaf rot	Corvallis	c/ 798
Rhynchosporium orthosporum Caldwell	Leaf scald	Corvallis	10,344
R. secalis (Oud.) J.J.Davis	Leaf scald	Granger	(Culture S 113);
Septoria triseti Speg.	Gray leaf speckle	Shedd, Corvallis	798
Uromyces jacksonii Arth.&Fromme	Jackson's rust	W. Creg.	(2)
Ustilago striaeformis (Westd.) Niessl	Stripe smut	Monroe, Wells (near)	10,719
AGROSTIS CANINA L.	VELVET BENT		
Ustilago sporium rubricosum (Deern. & Barth.) Sprague	Red eye spot	Astoria in plots	10,980
Phycomycete Indet. <u>e/</u>	Purple leaf speckle	Astoria	119
Puccinia coronata Corda	Crown rust	Astoria in plots	10,713
P. graminis agrostidis Eriks.	Stem rust	Astoria in plots	10,713
AGROSTIS CASTELLANA Boiss. & Reut.	BENT		
Puccinia coronata Corda	Crown rust	Corvallis	H.A. Rampton
Scolecotrichum graminis Fekl.	Leaf stripe	Corvallis	H.A. Rampton
Septoria triseti Speg.	Gray leaf speckle	Corvallis	H.A. Rampton
AGROSTIS ELIENSIS Vasey	THINGRASS		
(A. foliosa Vasey)	(Leafy bent)	W. Oreg.	(2, 7)
Puccinia coronata Corda	Crown rust	Mehl Creek (Douglas County)	419
Septoria calamagrostidis (Lib.) Sacc.	Leaf spot		
AGROSTIS EXLATA Trin.	SPIKE REDTCP		
Claviceps purpurea (Fr.) Tul.	Ergot	Warrenton	10,314
Darluca filum (Piv.) Cast.	on Puccinia coronata	Clifton	10,712
Erysiphe graminis DC.	Corda	Marion County	10,507
	Powdery mildew		
e/ This is a unilocular body or cluster of bodies embedded in the leaf. No one has been able to identify them. They probably belong near the Chytridiales. Nothing is known of their life history as the bodies have not been seen to germinate although sometimes they are found empty. At times they are very common during moist periods in winter but more often only a few leaves will be found infected on a plant.			

Helminthosporium triseptatum Drechsl.
Hendersonia sp.
Mastigosporium rubricosum (Dearn. & Barth.)
 Sprague

Phycomycete Indet. e/
Puccinia coronata Corda
P. graminis Pers.
Scolecotrichum graminis Fekl.

Septoria calamagrostidis (Lib.) Sacc.
Ustilago striaeformis (Westd.) Niessl.

AGROSTIS EXARATA var. *AMPLA* (Hitchc.) Hitchc.
Septoria triseti Speg.

AGROSTIS HALLII Vasey
Phycomycete Indet. e/
Rhizoctonia solani Kühn
Scolecotrichum graminis Fekl.
Septogloeum oxysporum Bomm., Rouss. & Sacc.
Septoria sp.
Uromyces jacksonii Arth. & Fromme

AGROSTIS SCABRA Willd.
Scolecotrichum graminis Fekl.
Septogloeum oxysporum Bomm., Rouss. & Sacc.

AGROSTIS HOWELLII Scribn.
Hendersonia culmicola var. minor Sacc.

AGROSTIS LONGILIGULA Hitchc.
Puccinia coronata Corda

AGROSTIS PALLENS Trin.
Uromyces jacksonii Arth. & Fromme

Leaf spot
 Leaf spot
 Red eye spot
 Purple leaf speckle
 Crown rust
 Stem rust
 Leaf stripe
 Leaf spot
 Stripe smut

GIANT SPIKE REDTOP
 Gray leaf speckle

WILD BENT
 Purple leaf speckle
 Leaf rot
 Leaf stripe
 Char spot
 Leaf spot
 Jackson's rust

TICKLEGRASS
 Leaf stripe
 Char spot

HOWELL'S BENT
 Leaf & sheath rot

PACIFIC BENT
 Crown rust

DUNE BENT (Seashore bent)
 Jackson's rust

Wells, Benton Co.
 Clifton
 Hanchet Creek,
 Yamhill County
 Clatsop County
 W. Creg.
 Jackson County
 Union Creek, Hanchet
 Creek
 Marion & Lincoln Cos.
 Benton & Jackson Cos.

Lewisburg, Benton Co.

1 mi. west of Summit
 Benton County
 Helmick Park
 Corvallis
 Helmick Park
 Benton County

Upper Klamath Marsh
 Cornucopia

W. fork of Hood Riv.

Coast

Coast

737
 10,712
 745
 456
 (2, 7)
 (2, 7)
 532
 10,377
 1391

647

91
 8489
 8370
 8278
 8370
 (2, 7)

530
 (Fischer)

804

(2, 7)

(7)

AGROSTIS PALUSTRIS Huds.

(*A. maritima* Lam.)
Claviceps purpurea (Fr.) Tul.
Fusarium culmorum (W.G.Sm.) Sacc.
F. nivale (Fr.) Ces. f/
F. nivale (Fr.) Ces. var. *major* Vr.
Macrophoma sp.
Mastigosporium rubricosum (Dearn. & Barth.)
 Sprague

Ovularia pulchella (Des.) Sacc. var. (?)
Phycomycete Indet.
Puccinia coronata Corda
Rhizoctonia solani Kühn
Septoria calamagrostidis (Lib.) Sacc.
Phaeoseptoria sp.
Septoria triseti Speg.
Tilletia pallida Fisch.
Uromyces jacksonii Arth. & Froume
Ustilago striaeformis (Westd.) Niessl

AGROSTIS STOLONIFERA L.

Mastigosporium rubricosum (Dearn. & Barth.)
 Sprague

AGROSTIS TENUIS Sibth.
Claviceps purpurea (Fr.) Tul.
Corticium solani (Prill. & Del.) Bourd. & Galz.

Darlucula filum (Biv.) Cast.
Fusarium culmorum (W.G.Sm.) Sacc.
F. nivale (Fr.) Ces.
F. oxysporum Schl.
Helminthosporium stenacium Drechs.
Mastigosporium rubricosum (Dearn. & Barth.)
 Sprague

CREeping BENT

(Seaside bent)
 Ergot
 Root rot
 Snow mold
 Leaf spot
 Red eye spot
 Tan leaf spot
 Purple leaf speckle
 Crown rust
 Secondary root rot
 Leaf spot
 Leaf spot
 Gray leaf speckle
 Head smut
 Jackson's rust
 Stripe smut

BENT

Red eye spot

COLONIAL BENT (Astoria bent)
 Ergot

Brown patch
 On *Puccinia coronata*
 Root rot
 Snow mold
 Secondary root rot
 Leaf blight

Red eye spot

Clatsop County 10,316
 Corvallis 10,447
 Willamette Valley 10,447
 6 mi. S. of Newport 34
 6 mi. S. of Newport 39

Coast region, 10,308
 Willamette Valley 10,131
 Corvallis 69
 Corvallis, Summit (7)
 W. Oreg. 10,447
 Corvallis c/ 8490
 W. Oreg. 39
 6 mi. S. of Newport 16
 Near Newport 8303
 Coast (7)
 Hood River 671
 Near Salem

Astoria in plots 8263

Astoria 10,029
 W. Oreg. c/ 747
 Astoria, Hebo 365
 W. Oreg. c/
 Corvallis 10,747
 Corvallis c/
 Corvallis 10,747

Coast region, 10,585
 Willamette Valley

Phycomycete Indet. e/	Purple leaf speckle	Willamette Valley, Coast Region	107;49;156
Puccinia coronata Corda	Crown rust	Astoria	10,734
P. graminis Pers.	Stem rust	Benton County	10,052
Robillarda agrostidis Sprague	Leaf rot	Corvallis	42
Septoria triseti Speg.	Gray leaf speckle	W. Oregon	10,483
Ustilago striaeformis (Westd.) Nicssl.	Stripe smut	Corvallis	18
AGROSTIS VERTICILLATA Vill.	WATER BENT	Sherman County	10,287
Erysiphe graminis DC.	Powdery mildew		
Mastigosporium rubricosum (Dearn. & Barth.) Sprague	Red eye spot	Astoria	8262
AIRA (See DESCHAMPSIA)			
ALOPECURUS AEQUALIS Sobol.	SHORTAWN FOXTAIL (Little meadow foxtail)	Upper Klamath Lake	10,058
Scolecotrichum graminis Fekl.	Leaf stripe		
ALOPECURUS GENICULATUS L.	WATER FOXTAIL	Crater Nat'l Forest	518
Scolecotrichum graminis Fekl.	Leaf stripe		
ALOPECURUS PRATENSIS L.	MEADOW FOXTAIL		
Claviceps purpurea (Fr.) Tul.	Ergot	Astoria	10,705
Puccinia coronata Corda	Crown rust	Astoria	10,291
P. graminis Pers.	Stem rust	Astoria	10,706
Rhynchosporium sp.	Leaf scald	Corvallis	10,275
Scolecotrichum graminis Fekl.	Leaf stripe	Corvallis	10,275
ALOPECURUS SACCATUS Vasey	PACIFIC MEADOW FOXTAIL		
Puccinia graminis Pers.	Stem rust	Corvallis	(2, 7)
AMMOPHILA ARENARIA (L.) Link	EUROPEAN BEACHGRASS		
Cladosporium sp.	Leaf mold	Lake Lytle	8386

ANTHOXANTHUM ODORATUM L. Cladosporium herbarum Lk.	SWEET VERNAL GRASS Leaf mold	Near Seaside (F.D. Bailey)	645
Colletotrichum graminicolum (Ces.) Wils.	Anthracnose	Tillamook and Multnomah Cos.	8264
Helminthosporium dematioides Bubak & Wrob.	Leaf spot	Corvallis & coast region	10,265
Phycomycete Indet. e/	Leaf spot	10 mi. S. of Seaside	105
Phyllosticta anthoxanthella Sprague	Leaf blotch	Triangle Lake	264
ARTHENATHERUM ELATIUS (L.) Mert. & Koch. Ascochyta graminicola Sacc. Claviceps purpurea (Fr.) Tul. Ocularia pulchella (Ces.) Sacc. Puccinia graminis Pers. Scolecotrichum graminis Fekl. Septogloeum oxysporum Bonm., Rouss. & Sacc. Ustilago perennans Rostr.	TALL CATGRASS Purple leaf speckle Ergot Leaf spot Stem rust Leaf stripe Char spot Head smut	Corvallis Corvallis Bonnevillie Astoria in plots Western Oregon Willamette Valley, Astoria General	21 25,979 8433 10,293 10,132 c/ 10,136 1813
AVENA BARBATA Brot. Puccinia graminis avenae Eriks. & Henn.	SLENDER WILD OAT Stem rust	Myrtle Point	10,436
AVENA BYZANTINA C. Koch Ascochyta sp. Erysiphe graminis DC. Fusarium culmorum (W.G.Sm.) Sacc. F. oxysporum Schl. F. poae (Pk.) W. Helminthosporium avenae Eidam H. sativum P.K. & B. Ophiobolus graminis Sacc. Pseudodiscosia avenae Sprague & Johnson	RED OAT White leaf spot Powdery mildew Root rot Secondary root rot Head blast Leaf spot Root rot Take-all Red leather leaf	Troutdale Scattered in coast region W.Oreg. & Moro Moro, western Oreg. Astoria Coast Lincoln County Curry & Marion Cos. Astoria, Willamette Valley	10,243 g/ 7212 c/ 8308 c/ 10,115 10,112 7600 8266 (12)

Puccinia coronata Corda	Crown rust	Coast	
P. graminis Pers.	Stem rust	W. Oregon	<u>g/</u> <u>g/</u>
Rhizoctonia solani Kühn	White foot rot	Lincoln & Lane Cos.	(10) 10,032
Septoria tritici Rob.f.avenae (Desm.)Sprague	Leaf blotch	W. Oregon	(9)
Ustilago avenae (Corda) Jens.	Loose smut	Scattered	1820
Ustilago kolleri Wille (U.levis (Kell & Sw.) Magn.)	Covered smut	General	1820
AVENA FATUA L.	WILD OAT		
Erysiphe graminis DC.	Powdery mildew	Corvallis, Mosier	1101
Fusarium culmorum (W.G.Sm.) Sacc.	Root rot	Linn County	48
Helminthosporium avenae Eidam	Leaf spot	W. Oregon	<u>e/</u>
Puccinia coronata Corda	Crown rust	Lincoln County	7537
P. graminis Pers.	Stem rust	Willamette	(2, 7)
Rhizoctonia solani Kühn	White foot rlt	Lincoln County	10,477
Septoria tritici Rob. f. avenae (Desm.) Sprague	Leaf blotch	Benton, Lincoln & Coos Counties	10,031
AVENA NUDA L.	NAKED OATS		
Puccinia coronata Corda	Crown rust	Astoria in plots	10,718
P. graminis avenae Eriks. & Henn.	Stem rust	Astoria in plots	10,718
AVENA SATIVA L.	OAT		
Bacterium striafaciens Elliott [Phytonomas s. Bergey et al.]	Bacterial stripe blight	Corvallis	(A.G. Johnson)
Cercospora herpotrichioides Fron	Foot rot	Wasco County	(14)
Colletotrichum graminicolum (Ces.) Wils.	Anthraxrose	Lincoln County	5196
Erysiphe graminis DC.	Powdery mildew	Scattered	10,158
Darluca filum (Biv.) Cast.	on Puccinia graminis	Willamette Valley	7532
Fusarium culmorum (W.G.Sm.) Sacc.	Root rot	W.Oreg. & Moro	(8)
F. poae (Pk.) Wr.	Head blast	Hood River, Astoria, and Warrenton	10,355
Helminthosporium avenae Eidam	Leaf spot	W. Oregon	<u>e/</u> 10,116
H. sativum P.B. & K.	Root rot	Lincoln County	10,114 (13)
Heterosporium avenae Oud.	Leaf mold	Forest Grove	10,452
Ophiobolus graminis Sacc.	Take-all	Marion County	10,160
Pseudodiscosia avenae Sprague & Johnson	Red leather leaf	Western Oregon	(12) 10,045

Puccinia coronata Corda	Crown rust	W. Oreg.	(2, 7)	12
P. graminis Pers.	Stem rust	W. Oreg.	(2, 7)	
Rhizoctonia solani Kühn	White foot rot	Lincoln & Lane Cos.	(10) c/	
Septoria tritici Rob. f. avenae (Desm.) Sprague	Leaf blotch	W. Oregon	(9) 10,035	
Ustilago avenae (Corda) Jens.	Loose smut	Scattered	1064	
U. kolleri Wille (U. levis [Kell. & Sw.] Magn.)	Covered smut	General	3821	
Wojnowicia graminis (McAlp.) Sacc.	Secondary root rot	Wasco, Union, & Umatilla Counties	(11) c/	
BAMBOO (GENUS INDET.)	Leaf mold	Corvallis	10,628	
Mycosphaerella tularenei Jacz.				
BECKMANNIA SYZIGACHNE (Steud.) Fern. (B. erucaeformis Arn. Auth.)	AMERICAN SLOUGHGRASS			
Puccinia graminis Pers.	Stem rust	Corvallis	(2, 7)	
Scolecotrichum graminis Fekl.	Leaf stripe	W. Oregon	10,060	
Uromyces beckmanniae Jacks.	Rust	W. Oregon	(2, 7)	
BRACMUS ARENARIUS Labill.	AUSTRALIAN CHESSE	Tygh Ridge (Wasco Co.)	10,085	
Scolecotrichum graminis Fekl.	Leaf stripe			
BROMUS CARINATUS Hook. & Arn. h/	CALIFORNIA BROME			
Ascochyta graminicola Sacc. var. diedickeana Baudys & Picb.	Leaf spot	Hood River, Whitson	10,200	
Bacterium coronafaciens atropurpureum (Reddy & Godkin [Phytomonas c. atropurpurea Magrou])	Chocolate spot	Corvallis	10,592	
Claviceps purpurea (Fr.) Tul.	Ergot	S. Benton County	10,731	
Corticium solani (Prill. & Del.) Bourd. & Galz. (Rhizoctonia solani Kühn)	Leaf rot	Hood River	10,245	
Darluka filum (Biv.) Cast.	Parasite on leaf rust	Corvallis	790	
Erysiphe graminis DC.	Powdery mildew	Wasco & Benton Cos.	10,221	
Heterosporium sp.	Leaf rot	Mt. Hood	1558-A	
Phycomycete Indet. e/	Purple leaf speckle	Glenwood	459	
Puccinia glumarum (Schm.) Eriks. & Henn.	Stripe rust	Medford, Corvallis	Univ. of Idaho Herb.	
P. rubigo-vera (DC.) Wint.	Leaf rust	General	(2, 7)	

Scolecotrichum graminis Fekl.	Leaf stripe	General	10,061
Septoria jacucella Sprague	Western leaf spot	General	10,372
Ustilago bullata Berk.	Brome smut	Scattered	10,521
<i>BROMUS CATHARTICUS</i> Vahl.	RESCUE GRASS		
(<i>B. uniolooides</i> H.B.K.)	Leaf rust	Corvallis	10,105
Puccinia rubigo-vera (DC.) Wint.	Brome smut	Astoria in plots	10,686
Ustilago bullata Berk.			
<i>BROMUS COMMUTATUS</i> Schrad.	HAIRY CHESS	Corvallis	10
Darluca filum (Biv.) Cast.	on Puccinia rubigo-vera	W. Oregon	(2)
Puccinia rubigo-vera (DC.) Wint.	Leaf rust	Gen. in Willamette	10,394
Septoria bromi Sacc.	Leaf spot	Valley	1200
Ustilago bullata Berk.	Brome smut	General	
<i>BROMUS ERECTUS</i> Huds.	ERECT BROME		
Bacterium coronafaciens atropurpureum Reddy & Godkin [Phytomonas]	Chocolate spot	Astoria in plots	10,711
<i>BROMUS GRANDIS</i> (Shear) Hitchc.	TALL BROME	Corvallis	(2, 7)
Puccinia rubigo-vera (DC.) Wint.	Leaf rust		
<i>BROMUS INERMIS</i> Leyss.	SMOOTH BROME	Grant County	10,104
Scolecotrichum graminis Fekl.	Leaf stripe	-----	(1)
Ustilago bullata Berk.	Brome smut		
<i>BROMUS MOLLIS</i> L.	SOFT CHESS		
(<i>B. hordeaceus</i> Am. Auth.)	(Soft cheat)	W. Oregon	(2, 7)
Puccinia rubigo-vera (DC.) Wint.	Leaf rust	W. Oregon	10,995
Septoria bromi Sacc.	Leaf spot	5 mi. E. of Weston	Fischer's coll.
Tilletia guyotiana Har.	Smut	General	1814
Ustilago bullata Berk.	Brome smut		
<i>BROMUS ORCUTTIANUS</i> Vasey	ORCUTT BROME	Curry County	7599
Ophiobolus graminis Sacc.	Take-all	Siskiyou Mts.	10,064
Scolecotrichum graminis Fekl.	Leaf stripe		

BROMUS PACIFICUS Shear	PACIFIC BROME		
Puccinia rubigo-vera (DC.) Wint.	Leaf rust	S. fork of Alsea Riv.	10,678
Scolecotrichum graminis Fekl.	Leaf stripe	Corvallis	10,066
BROMUS RACEMOSUS L.	SMOOTH FLOWERED SOFT CHEAT		
Erysiphe graminis DC.	Powdery mildew	Medford	10,250
Puccinia rubigo-vera (DC.) Wint.	Leaf rust	Hood River and Yamhill Counties	(2, 7) 10,811
Septoria bromi Sacc.	Leaf spot	Corvallis	10,089
Ustilago bullata Berk.	Brome smut	Blue Mts.	
BROMUS RIGIDUS Roth.	RIPGUT GRASS		
Bacterium coronafaciens atropurpureum Reddy & Godkin [Phytomenas]	Chocolate spot	Rufus	10,950
Cercospora bromi Sorague	Gray leaf spot	Tumwater, Corvallis	10,405
Puccinia rubigo-vera (DC.) Wint.	Leaf rust	E. & S. Oregon	(2, 7)
Septoria jacucella Sprague	Western leaf spot	6 mi. N. of Eugene	424
BROMUS SECALINUS L.	CHESS (Cheat)		
Puccinia rubigo-vera (DC.) Wint.	Leaf rust	W. Oregon	(2, 7)
Septoria bromi Sacc.	Leaf spot	Williamette Valley	10,402 c/
Ustilago bullata Berk.	Brome smut	General	1821
BROMUS SECALINUS L. var. VELUTINUS (Schrad.) Koch	CHESS		
Ustilago bullata Berk.	Brome smut	Corvallis	10,430
BROMUS SITCHENSIS Trin.	ALASKA BROME		
Puccinia glumarum (Schm.) Eriks. & Henn.	Stripe rust	Moro	Herb. Univ. of Idaho (2)
P. rubigo-vera (DC.) Wint.	Leaf rust	----	
BROMUS STERILIS L.	BARREN CHEAT		
Erysiphe graminis DC.	Powdery mildew	Corvallis	10,487
BROMUS TECTORUM L.	DOWNY CHESS (downy brome)		
Cercospora herpotrichioides Fron.	Cercospora foot rot	Union & Wasco Cos.	c/
Fusarium culmorum (W.G.Sm.) Sacc.	Root rot	Wasco County	c/

Puccinia rubigo-vera (DC.) Wint.	Leaf rust	Columbia County	(2, 7)
Ustilago bullata Berk.	Brome smut	E. Oregon	10,290
Wojnowicia graminis (McAlp.) Sacc.	Secondary root rot	Union County	c/
BROMUS VULGARIS (Hook.) Shear	NARROW FLOWERED BROME		
Cercospora bromi Sprague	Gray leaf spot	Sourgrass Crk., Yamhill County	467
Darluca filum (Biv.) Cast.	Parasite on leaf rust	Near Pacific Grange, Clatsop County	347
Mastigosporium cylindricum Sprague	Brown spot	Mehl Creek Road, Douglas County	488
Puccinia rubigo-vera (DC.) Wint.	Leaf rust	W. Oregon	(2, 7)
CALAMAGROSTIS CANADENSIS (Michx.) Beauv.	BLUEJOINT		
Puccinia coronata Corda	Crown rust	Columbia County	(2, 7)
Urocystis agropyri (Preuss.) Schroet.	Smut	Mann's Lake	(4) (W.A.F. 222) d/
CALAMAGROSTIS INEXPANSA A. Gray	NORTHERN REEDGRASS (Narrow spiked reedgrass)		
Puccinia coronata Corda	Crown rust	Astoria	(2, 7)
CALAMAGROSTIS NUTKAENSIS (Presl.) Steud.	PACIFIC REEDGRASS		
Claviceps purpurea (Fr.) Tul.	Ergot	Delmoor Bog, Clatsop County	703
Coniothyrium psammae Oud.	Leaf spot	Taft, Waldport	10,817
Darluca filum (Biv.) Cast.	Parasite on crown rust	Coast	10,325;33
Mycosphaerella tassiana (DeNot.) Johans.	Leaf spot	Taft	10,817
Puccinia coronata Corda	Crown rust	Coast	33
P. pygmaea Eriks.	Rust	Newport	(2, 7)
Septoria arctica Berk. & Curtis	Leaf blotch	Seaside, (Delmoor Bog)	709
CALAMAGROSTIS RUBESCENS Buckl.	PINEGRASS		
Cladosporium herbarum Lk.	Leaf mold	Cornucopia	(Fischer)
Colletotrichum graminicolum (Ces.) Wils.	Anthracnose	Cornucopia	(Fischer)
CENCHRUS PAUCIFLORUS Benth.	FIELD SAND BUR (Burggrass)		
Sorosporium syntherismae (Pk.) Farl.	Smut	Hermiston	Sent to Zundel

CORTADERIA SELLOANA (Schult.) Aschers. & Graebn.
Hendersonia culmiseda Sacc.

DACTYLIS GLOMERATA L.

Claviceps purpurea (Fr.) Tul.
Colletotrichum graminicolum (Ges.) Wils.
Erysiphe graminis DC.

Fusarium avenaceum (Fr.) Sacc.
Mastigosporium rubricosum (Dearn. & Barth.)
Sprague

Phyllosticta owensii Sprague
Phycomycete Indet. e/
Puccinia graminis Pers.
Rhynchosporium orthosporum Caldwell
Scolecotrichum graminis Fckl.
Selenophoma donacis var. stomaticola (Bauml.)
Sprague & Johnson
Stagonospora arenaria Sacc.

DANTHONIA CALIFORNICA var. AMERICANA (Scribn.)
Hitchc. (D. americana Scribn.)
Cladosporium sp. (? parasite)
Scolecotrichum graminis Fckl.
Selenophoma donacis var. stomaticola (Bauml.)
Sprague & Johnson
Ustilago residua Clinton

DANTHONIA INTERMEDIA Vasey
Pleospora sp.

DESCHAMPSIA CAESPITOSA (L.) Beauv.
Hendersonia culmicola var. minor Sacc.
Hendersonia sp.

Phaeoseptoria sp.
Scolecotrichum graminis Fckl.

PAMPASGRASS
Leaf spot

ORCHARD GRASS

Ergot
Anthracnose
Powdery mildew
Culm canker

Purple leaf spot
Leaf rot
Red leaf speckle
Stem rust
Leaf scald
Leaf stripe

Selenophoma speckle
Purple blotch

WILD OATGRASS
Speckled mold
Leaf stripe

Catgrass eye spot
Smut

TIMBER OATGRASS (Mountain oatgrass)
Leaf rot

TUFTED HAIRGRASS
Leaf spot
Leaf rot

Leaf rot
Leaf stripe

Bayview, Lincoln Co. 819

N.W. Oregon 10,527
Greenhouse, OSC, Corvallis 690
Columbia Gorge;
Umatilla County 10,055; 142
S. fork of Santiam Riv. 679

W. Oregon 10,011
Waldport 10,595
Wren 86
W. Oregon (2, 7)
Benton County 10,124
General 7591

Troutdale 10,379 c/
Wallace Bridge 742

Willanette Valley 8255
Corvallis 10,193

Linn and Benton Cos. 629
Benton, Marion, & Linn
Counties 1254

10,101

Corvallis 51
Near Granger, near
Corvallis 809
Near Granger 809
Linn County 10,673

Septoria poliomela Syd.	Tan leaf spot	Near Granger	809
Stagonospora subseriata Sacc.	Leaf rot	Corvallis	51
Uromyces jacksonii Arth. & Fromme	Jackson's Rust	Lincoln County	(2, 7)
DESCHAMPSIA DANTHONICIDES (Trin.) Munro	ANNUAL HAIRGRASS		
Scoleotrichum graminis Fekl.	Leaf stripe	Douglas County	10,068
Septoria poliomela Syd.	Tan leaf spot	Benton County	c/ 8491
Tilletia airae Blytt	Smut	-----	(4)
DESCHAMPSIA FLONGATA (Hook.) Munro	SLENDER HAIRGRASS		
Darluca filum (Biv.) Cast.	Parasite on rust	Tillamook County	332
Fusarium avenaceum (Fr.) Sacc.	Parasite on rust	Tillamook County	332
Puccinia graminis Pers.	Stem rust	-----	(2)
Uromyces jacksonii Arth. & Fromme	Jackson's rust	Willamette Valley	(2, 7)
DISTICHLIS STRICTA (Torr.) Rydb.	DESERT SALTGRASS		
Dothidella aristidae (S.) Ell. & Ev.	Char spot	Baker and E. Oregon	E/
Puccinia aristidae Tracy	Rust	E. Oregon	(2, 7)
Ustilago hypodytes (Schl.) Fr.	Sheath smut	S. Oregon	3646
ECHINOCHLOA GRUS-CALLI (L.) Beauv.	BARNYARD GRASS		
(?) Epicoccum sp.	Head mold	Astoria	8374
Ustilago crus-galli Tracy & Earle	Smut	S.E. Oregon	(4) (WAF 212) d/
ELYMUS ARENICOLA Scribn. & Smith	SAND RYEGRASS		
Claviceps purpurea (Fr.) Tul.	Ergot	Biggs	10,508
Puccinia procera Diet. & Holw.	California rust	Umatilla & Sherman Cos.	(7)
P. rubigo-vera (DC.) Wint.	Leaf rust	E. Oregon	(2)
ELYMUS CANADENSIS L.	CANADA WILD-RYE		
Claviceps purpurea (Fr.) Tul.	Ergot	E. Oregon	1864
Puccinia rubigo-vera (DC) Wint.	Leaf rust	Umatilla County	E/
ELYMUS CONDENSATUS Presl	GLANT WILD-RYE		
Claviceps purpurea (Fr.) Tul.	Ergot	Union & Umatilla Cos.	10,694
Erysiphe graminis DC.	Powdery mildew	E. Oregon	(W.A.F.163)d/

Heterosporium avenae Oud.					
Puccinia glumarum (Schm.) Eriks. & Henn.	Leaf blight	Sherman County	10,230.		15
	Stripe rust	Moro	(6) Herb. Univ. of Idaho		
P. graminis Pers.	Stem rust	Union County	10,690		
P. procerata Diet. & Holw.	California rust	Fossil	10,123		
P. rubigo-vera (DC.) Wint.	Leaf rust	E. Oregon	(2, 7)		
Septoria infuscans (Ell. & Ev.) Sprague	Brown leaf blotch	Sherman, Jefferson, Gilliam & Umatilla Cos.	657		
		Wasco County	8451		
		-----	(4)		
Selenophoma donacis (Pass.) Sprague & Johnson	Selenophoma speckle				
Ustilago hypodytes (Schl.) Fr.	Stem smut				
ELYMUS GLAUCUS Buckl.					
? Bacterium sp.	ETHE WILD RYE				
Cladosporium herbarum (Pers.) Lk.	Leaf rot	Fall Creek	10,236		
Claviceps purpurea (Fr.) Tul.	Leaf mold	Troutdale	10,945		
Darluca filum (Biv.) Cast.	Ergot	Benton County	10,730		
Fusarium avenaceum (Fr.) Sacc.	On Puccinia glumarum	Linn County	175		
Phycomycete Indet. e/	On rust	Bonneville	8457		
Phyllactinia corylea (Pers.) Karst.	Purple leaf speckle	Wren	88		
Puccinia glumarum (Schum.) Eriks. & Henn.	Powdery mildew	Bonneville	8448		
P. graminis Pers.	Stripe rust	Benton County	(2, 6, 7)		
P. rubigo-vera (DC.) Wint.	Stem rust	Benton & Crook Cos.	(2, 7)		
Rhizoctonia solani Kühn	Leaf rust	W. Oregon	(2, 7)		
Rhynchosporium secalis (Oud.) J.J. Davis	Leaf rot	Scapoose, Corvallis	141 c/		
R. orthosporum Caldwell	Leaf scald	Linn County	10,276		
Scolecotrichum graminis Fekl.	Leaf scald	Linn and Marion Cos.	10,095		
Septoria elymi Ell. & Ev.	Leaf stripe	Benton County	7528		
Selenophoma donacis (Pass.) Sprague & Johnson	Leaf nottle	W. Oregon	c/ 392		
Stagonospora arenaria Sacc.	Selenophoma speckle	Crater Lake	10,392		
Tilletia elymi Diet. & Holw.	Purple leaf blotch	Linn County	8487		
	Smut	Carson (Baker County)	DC Smith		
ELYMUS HIRSUTUS Presl					
Helminthosporium tritici-repentis Died.	HAIRY SEEDED WILD RYE				
	Brown leaf speckle	S. fork Santiam River, Linn County	646		
ELYMUS MOLLIS Trin.					
Claviceps purpurea (Fr.) Tul.	AMERICAN DUNEGRASS				
Darluca filum (Biv.) Cast.	Ergot	Warrenton	10,328		
	Parasite on rust	Warrenton	10,329		

Puccinia rubigo-vera (DC.) Wint. Septoria pacifica Sprague Stagonospora subseriata Sacc. Tiarospora perforans (Rob.) Höhn.	Leaf rust Black stripe Leaf spot Leaf speckle	Coast Lincoln & Tillamook Cos. Manhattan, Lake Lytle Tillamook County	10,329 10,376 707 10,958
ELYMUS TRITICOIDES Buckl. Claviceps purpurea (Fr.) Tul. Puccinia montanensis Ellis. P. rubigo-vera (DC) Wint. Septoria elymi-europaei Jaap S. infuscans (Ell. & Ev.) Sprague Scolecotrichum graminis Fekl.	BEARDLESS WILD-RYE (Alkali ryegrass) Ergot Brown stripe rust Leaf rust Leaf speckle Brown leaf blotch Leaf stripe	La Grande Talent Sherman County Klamath Falls Eastern Oregon Souaw Butte	10,689 10,635 (2, 7) 10,380 10,380 837
ELYMUS VANCOUVERENSIS Vasey Puccinia rubigo-vera (DC.) Wint.	VANCOUVER DUNEGRASS Leaf rust	Astoria	Fischer's coll.
FESTUCA DERTONENSIS (All.) Áschers. & Graben. Ophiobolus graminis Sacc. Phyllachora sylvatica Sacc. & Speg. Septoria tenella Cke. & Ell.	FESCUE Take-all Tar spot Leaf spot	East Corvallis, Linn Co. S. fork Alsea River Roaring River, Linn Co.	E/ 322 186
FESTUCA IDAHOENSIS Elmer Puccinia crandallii Pam. & Hume	BLUEGRASS FESCUE (Idaho fescue) Rust	Blue mts.	(2, 7)
FESTUCA ELATIOR L. Cladosporium herbarum (Pers.) Lk. Claviceps purpurea (Fr.) Tul. Puccinia coronata Cda. P. graminis Pers. P. poae-sudeticae (Westd.) Jørstad	MEADOW FESCUE Leaf mold Ergot Crown rust Stem rust Rust	Granger Astoria Lincoln County Benton and Lane Cos. W. Oregon	10,960 E/ (2, 7) (2, 7) (2, 7)
FESTUCA MAIREI St. Yves Cladosporium herbarum (Pers.) Lk.	FESCUE Leaf mold	Granger	10,506
FESTUCA MEGALURA Nutt. Mycosphaerella sp. Ophiobolus graminis Sacc. Ovularia pulchella (Ces.) Sacc.	FOXTAIL FESCUE Blight Take-all Brown leaf spot	Benton County Linn and Benton Cos. Linn, Benton & Lincoln Cos.	10,818 E/ 10,271

Phyllachora sylvatica Sacc. & Speg.
Puccinia graminis Pers.

FESTUCA MYUROS L.

Corticium fuciforme (McAlp.) Wak.
Ophiobolus graminis Sacc.
Ovularia pulchella (Ces.) Sacc.
Puccinia graminis Pers.

FESTUCA COTOFLOA Walt.

Rhizoctonia solani Kühn
Tilletia fusca Ell. & Ev.
Ustilago mulfordiana Ell. & Ev.

FESTUCA OCCIDENTALIS Hook.

Phyllachora sylvatica Sacc. & Speg.

FESTUCA PACIFICA Piper

Puccinia graminis Pers.
P. piperi Ricker
Ustilago mulfordiana Ell. & Ev.

FESTUCA RUBRA L.

Ascochyta graminicola Sacc. var. *brachypodii*
 Trail

Cercospora subulata Sprague
Darlucal filum (Biv.) Cast.
Hendersonia sp.
Hendersonia culmicola var. *minor* Sacc.
Mycosphaerella tulasnei Jacz.
Phaeoseptoria sp.

Phyllachora sylvatica Sacc. & Speg.
Puccinia crandallii Pan. & Hume

Septoria tenella Cke. & Ell.

Tar spot
 Stem rust
 Linn County
 Corvallis
 10,491
 (2, 7)

RAT TAIL FESCUE

Pink patch
 Take-all
 Brown leaf spot
 Stem rust
 Bayview, Lincoln Co.
 Lincoln County
 W. Oregon
 Willamette Valley
 823
 g/
 10,125
 (2)

SIXWEEKS FESCUE (slender fescue)

Brown patch
 Smut
 Smut
 Bayview, Lincoln Co.

 556
 (4)
 (4)

WESTERN FESCUE

Tar spot
 Mehl Creek, Douglas Co.
 479

PACIFIC FESCUE

Stem rust
 Piper's rust
 Smut
 Corvallis
 Eight Dollar Mt.
 (S. Oreg.)
 Columbia R.
 (2, 7)
 (2, 7)
 1371

RED FESCUE

Leaf spot
 Eye spot
 on Rust
 Secondary leaf rot
 Leaf mold
 Leaf mold
 Secondary leaf rot
 Tar spot
 Rust
 Tan leaf spot
 Garibaldi
 Halsey
 Garibaldi, Lake Lytle
 Garibaldi
 Near Newport
 Corvallis
 Garibaldi; King's
 Valley
 Newport
 Union, Benton, Tillamook
 and Lincoln Cos.
 Corvallis
 8377
 10,389
 510; 748
 749
 35
 H.A. Rampton
 8376
 10,174
 748
 (2, 7)
 H.A. Rampton

Plant Name	Disease	Location	Year
FESTUCA RUBRA var. COMMUTATA Gaud.	Secondary seed mold	Benton County	692
Cladospodium herbarum Lk.	Pink patch	Astoria, Portland, Corvallis.	687
C. solani (Prill. & Del.) Bourd. & Galz.	Brown patch	Portland	E. 511
Fusarium sp.	Scab	Astoria	8315
F. nivale (Fr.) Sor.	Snow mold	Portland	E. 410
Hendersonia sp.	Leaf rot	Sulfur Springs Road, Benton County	810
Phycomycete <u>e</u> /	Purple leaf speckle	Corvallis	59
Septoria tenella Cke. & Ell.	Tan leaf spot	W. Oregon	10,582
FESTUCA SCABRELLA Torr.	ROUGH FESCUE (Buffalo bunchgrass)	E. Central Oregon	(7) 1424
Puccinia crandallii Pam. & Hume	Rust		
FESTUCA SUBULATA Trin.	BEARDED FESCUE (Nodding fescue)		
Phyllosticta sp.	Leaf spot	Silver Creek Falls	270
Puccinia coronata Corda.	Crown rust	Coast Range	(7)
P. crandallii Pam. & Hume	Rust	Ashland, Silver Creek Falls	(2, 7)
FLUMINEA FESTUCACEA (Willd.) Hitchc.	FLUMINEA GRASS		
Ustilago arthuri Hume	Smut	-----	(4)
GASTRIDIDIUM VENTRICOSUM (Gouan) Schinz & Thell.	NIT-GRASS	S. Willamette Valley	g/
Helminthosporium sp.	White leaf spot		
GLYCERIA ELATA (Nash) Hitchc.	TALL MANNAGRASS		
Puccinia coronata Cda.	Crown rust	Clatskanie	(2, 7)
Septoria nodorum Berk.	Leaf spot	Cornucopia, Elgin	(Fischer)
Ustilago longissima (Sow.) Tul.	Smut	Clatskanie	1810
GLYCERIA FLUITANS (L.) R. Br.	MANNAGRASS		
Scolecotrichum graminis Fekl.	Leaf stripe	Benton County	10,152

GLYCERIA GRANDIS S. Wats.	AMERICAN MANNAGRASS	Portland	10,070
Scoleotrichum graminis Fekl.	Leaf stripe	-----	(15)
Ustilago longissima (Sow.) Tul.	Smut		
GLYCERIA PAUCIFLORA Presl	WEAK MANNAGRASS	N.W. Oreg.	(2, 7)
Puccinia coronata Corda	Crown rust		
GLYCERIA SEPTENTRIONALIS Hitchc.	EASTERN MANNAGRASS	Tillamook	10,076
Scoleotrichum graminis Fekl.	Leaf stripe		
GLYCERIA STRIATA (Lam.) Hitchc.	FOWL MANNAGRASS		
(Panicularia nervata Kuntze.)			
Scoleotrichum graminis Fekl.	Leaf stripe	Umpqua Valley	10,071
Septoria nodorum Berk.	Leaf spot	Hoover	10,177
HESPERCCHLOA KINGII (S.Wats.) Rydb.	SPIKE FESCUE		
(FESTUCA KINGII Cassidy, F. confinis Vasey)	Rust	S.E. Oregon	(7)
Puccinia crandallii Pam. & Hume			
HIEROCHLOE OCCIDENTALIS Buckl.	GIANT VANILLAGRASS		
(Torresia macrophylla Hitchc.)	(California sweetgrass)		
Puccinia graminis Pers.	Stem rust	Benton County	(7) 10,086
HOLCUS LANATUS L.	VELVET GRASS		
Cercospora holci Sprague	Tan leaf spot	W. Oregon	10,202
Ciaviceps purpurea (Fr.) Tul.	Ergot	Coast Region	1727
Darluca filum (Biv.) Cast.	Parasite on rust	Waldport and Hood River	10,503
Dilophospora alopecuri (Fr.) Fr.	Twist disease	W. Oregon	1229
Helminthosporium triseptatum Drechs.	Leaf mold	Lincoln County	10,120
Ophiobolus graminis Sacc.	Take-all	Alsea Mts.	10,012
Ovularia pulchella (Ces.) Sacc.	Red leaf spot	Alsea, Tangent	10,666
Puccinia coronata Corda	Crown rust	Coast	(2, 7)
P. rubigo-vera (DC.) Wint.	Leaf rust	W. Oreg.	(2, 7)
Rhizoctonia solani Kühn	White foot rot	Lincoln Co.	10,101
Septoria tritici Rob. f. holci Sprague	Leaf blotch	N.W. Oreg.	10,108
Tilletia holci (West.) Rostr.	Smut	-----	1378
Ustilago striaeformis (Westd.) Niessl	Stripe smut	Willamette Valley	10,670

HORDEUM DISTICHON L.
Erysiphe graminis DC.
Fusarium culmorum (W.G.Sm.) Sacc.
Puccinia anomala Rostr.
P. graminis Pers.
Rhizoctonia solani Kühn
Rhynchosporium secalis (Oud.) J.J. Davis
Ustilago hordei Lagerh.

HORDEUM GUSSONIANUM Parl.
Puccinia glumarum (Schm.) Eriks. & Henn.
Rhizoctonia solani Kühn

HORDEUM JUBATUM L.

Puccinia glumarum (Schm.) Eriks. & Henn.
Rhynchosporium secalis (Oud.) J.J. Davis
Uromyces jacksonii Arth. & Fromme
Ustilago bullata Berk.

HORDEUM MURINUM L.

Puccinia glumarum (Schm.) Eriks. & Henn.
P. hordei Fckl.
Rhynchosporium secalis (Oud.) J.J. Davis
Ustilago bullata Berk.

HORDEUM NODOSUM L.

Erysiphe graminis DC.
Puccinia glumarum (Schm.) Eriks. & Henn.

P. graminis Pers.

P. hordei Fckl.

Scolecotrichum graminis Fckl.

Urocystis agropyri (Preuss) Schroet.

Uromyces jacksonii Arth. & Fromme

Ustilago bullata Berk.

TWO ROW BARLEY
Powdery mildew
Root rot
Leaf rust
Stem rust
White foot rot
Leaf scald
Covered smut

W. Oreg. 670
W. Oreg. c/
Lincoln & Marion Cos. 7540
Corvallis (2, 7)
Alsea Valley c/
Linn County 10,273
Near Dallas, St. 10,756
Helens

MEDITERRANEAN BARLEY

Stripe rust
Leaf rot

Corvallis (2, 7)
Conroy, near Corvallis 22

FOXTAIL BARLEY (Squirrel tail)

Stripe rust
Leaf scald
Jackson's rust
Smut

(6) 10,074
7559
(2, 7)
Fischer's coll.

WALL BARLEY (Mouse barley)

Stripe rust

Herb. Univ. of Idaho

Rust

W. Oreg. (2)

Leaf scald

Corvallis 7534

Smut

10,050

MEADOW BARLEY

Powdery mildew
Stripe rust

(W.A.F. 165) d/
(6) Herb., Univ. of Idaho

Stem rust

Benton & Union Cos. 10,732

Rust

(2)

Leaf stripe

Benton & Union Cos. 10,676

Leaf smut

10,749

Jackson's rust

(2, 7)

Smut

Central Point &

Linn County 10,725

HORDEUM NODOSUM var. *BOREALE* (Scribn. & Smith) Hitchc.
Scolecotrichum graminis Fekl.

HORDEUM VULGARE L.

Bacterium translucens Jones, Johnson, & Reddy [Phytophthora t. Bergey et al.]
Cercospora herpotrichioides Fron
Claviceps purpurea (Fr.) Tul.
Erysiphe graminis DC.
Fusarium culmorum (A.G.Sm.) Sacc.
Helminthosporium gramineum Rabh.
H. sativum P. K. & B.
H. teres Sacc.
Mycosphaerella tulasnei Jacz.
Ophiobolus graminis Sacc.
Puccinia anomala Rostr.
P. glumarum (Salm.) Eriks. & Henn.
P. graminis Pers.
Rhizoctonia solani Kühn

Rhynchosporium secalis (Oud.) J.J.Davis
Septeria passerinii Sacc.
Ustilago hordei Lagerh.
U. nuda Rostr.
Wojnowicia graminis (McAlp.) Sacc. & D. Sacc.

KOELERIA CRISTATA (L.) Pers.

Puccinia koeleriae Arth.
P. monoica (Pk.) Arth.
Septoria calamagrostidis (Lib.) Sacc.
 var. *koeleriae* (Cocc. & Wcr.) Spr.

LOLIUM MARSCHALLII Stev.

Ovularia pulchella (Ces.) Sacc.

NORTHERN MEADOW BARLEY

Leaf stripe Ukiah 10, 672

BARLEY

Bacterial blight
Cercospora foot rot
 Ergot
 Powdery mildew
 Root rot
 Stripe
 Root rot
 Net blotch
 Leaf mold
 Take-all
 Leaf rust
 Stripe rust
 Stem rust
 White foot rot

Leaf scald
 Leaf spot
 Covered smut
 Loose smut
 Secondary root rot

JUNEGRASS

Rust
 Rust
 Leaf spot

RYEGRASS

Gray leaf spot

Corvallis (1)
 Wasco & Union Cos. (14) c/
 1927
 Corvallis (1); 734
 Willamette Valley (1) c/ g/
 W. Oreg. 4822
 Corvallis c/ 10, 111
 Coast & E.Oreg. 7423
 Corvallis 384; 489
 Corvallis, Eugene 10, 298
 W. Oreg. (2)
 Willamette Valley (2, 6, 7)
 Moro (2, 7)
 Corvallis (10) c/ g/ (14)
 Lincoln, Benton, & Lane Counties 10, 020
 General 10, 042
 Corvallis (1) 10, 525
 General 7071
 Corvallis, Pendleton 7070
 Wasco & Union Cos. (11) c/

Union County (2, 7)
 Grant County (7) J.R.Weir 237
 Grant, Sherman,
 Benton & Union Cos. 10, 363

Benton County 10, 241

<i>LOLIUM MULTIFLORUM</i> Lam. (L. italicum A. Br.)	ITALIAN RYEGRASS		
<i>Ascochyta lolii</i> (West.) Spr. & John.	Brown leaf spot	W. Oreg.	c/ 10,122
<i>Eacterium coronafaciens atropurpureum</i>			
Reddy & Godkin [Phytonomas]	Chocolate spot	W. Oreg.	10,550
<i>Claviceps purpurea</i> (Fr.) Tul.	Ergot	W. Oreg.	1743
<i>Darluca filum</i> (Biv.) Cast.	On <i>Puccinia coronata</i>	Corvallis	e/
<i>Fusarium culmorum</i> (W.G.Sm.) Sacc.	Root rot	Willamette Valley	(8)
<i>Phytophthora</i> sp.	Leaf rot	Corvallis	10,122
<i>Puccinia coronata</i> Corda	Crown rust	W. Oreg.	(2, 7)
<i>P. graminis</i> Pers.	Stem rust	Tulatin	1357
<i>Rhynchosporium orthosporum</i> Caldwell	Leaf scald	Corvallis & Ft. Yamhill	10,435
<i>R. secalis</i> (Oud.) J.J. Davis	Leaf scald	Corvallis	10,119
<i>Scolecotrichum graminis</i> Fekl.	Leaf stripe	Corvallis	E/
<i>Septoria tritici</i> Rob. var. <i>lolii</i> (Cast.) Sprague & Johnson	Leaf blotch	Benton County	c/ 452
<i>Ustilago</i> sp.	Head smut	W. Oreg.	5207
<i>LOLIUM PERENNE</i> L.	PENETRAL RYEGRASS (English ryegrass)		
<i>Ascochyta graminicola</i> Sacc. var. <i>brachypodii</i> Trail	White leaf spot	Multnomah County	10,239
<i>A. lolii</i> (West.) Sprague & Johnson	Brown leaf spot	W. Oregon	10,219
<i>Bacterium coronafaciens atropurpureum</i>			
Reddy & Godkin [Phytonomas]	Chocolate spot	Astoria, Corvallis	10,710
<i>Claviceps purpurea</i> (Fr.) Tul.	Ergot	N.W. Oreg.	10,129
<i>Colletotrichum graminicolum</i> (Ces.) Wils.	Anthraxnose	Scottsburg	9
<i>Helminthosporium siccans</i> Drechs.	Brown leaf scorch	Corvallis	10,135
<i>Ovaria lolii</i> Volkart	Eye spot	Corvallis	E/
<i>Puccinia coronata</i> Cda.	Crown rust	N.W. Oreg.	(2, 7)
<i>Rhynchosporium orthosporum</i> Caldwell	Leaf scald	Benton County	10,240
<i>Scolecotrichum graminis</i> Fekl.	Leaf stripe	Corvallis	10,040
<i>Septoria tritici</i> Rob. var. <i>lolii</i> (Cast.) Sprague and Johnson	Leaf blotch	Benton & Linn Cos.	c/ 449
<i>Ustilago striaeformis</i> (Westd.) Niessl	Stripe smut	Corvallis	7181
<i>LOLIUM SUBULATUM</i> Vis.	NARROW SPIKED RYEGRASS		
<i>Puccinia graminis</i> Pers.	Stem rust	Corvallis	3277

LOLIUM TEMULENTUM L. Bacterium coronafaciens atropurpureum Reddy & Godkin [Phytomonas]		DARNEL			
MELICA BULBOSA Geyer (M. bella Piper) Sclerotrichum graminis Fckl.		Chocolate spot	Wallace Bridge	10,728	
MELICA SUBULATA (Griseb.) Scribn. Cercospora subulata Spr.		ONIONGRASS Leaf stripe	Wallowa Mts.	10,075	
MUHLBERGIA ANDINA (Nutt.) Hitchc. (M. comata Thurb.) Uromyces minimus J.J. Davis		ALASKA ONIONGRASS Leaf blast	Cochoco Nat'l Forest	10,669	
MUHLBERGIA ASPERIFOLIA (Nees & Mey.) Parodi (Sporobolus asperifolius Nees & Mey.) Phyllachora sp. Tilletia asperifolia Ell. & Ev.		FOXTAIL MUHLY (Hairy Muhlenbergia) Rust	Wallowa County	(2, 7)	
MUHLBERGIA RACEMOSA (Michx.) B.S.P. Uromyces minimus J.J. Davis		SCRATCHGRASS			Fischer's coll. (4)
ORYZOPSIS HYMENOIDES (Roem. & Schult.) Ricker Puccinia scaber (Ell. & Ev.) Barth. Selenophoma denacis var. stomaticola (Bauml.) Sprague and Johnson Ustilago hypodytes (Schl.) Fr.		Tar spot Smut	Baker -----		
PANICUM MILLACEUM L. Bacterium panicelli Elliott [Phytomonas p. Bergey et al.] Sphaerellotheca panic-miliacei (Pers.) Bubak		MARSH MUHLY (Satin grass) Rust	Wallowa County	(2, 7)	
PANICUM PACIFICUM Hitchc. & Chase Cercospora fusimaculans Atk.		INDIAN RICE GRASS (Indian millet) Rust	Celilo	8441	
		Selenophoma speckle Stem smut	Gilliam County Wasco County	803 (Dana) 7617	
		BROOMCOCK MILLET (Proso or hog millet)			
		Leaf blight Smut	Seaside Corvallis	10,332 1806	
		PACIFIC PANICUM Leaf blotch	Mary's Peak	9898 (Zeller)	

PHALARIS ARUNDINACEA L.	REED CANARYGRASS		
Puccinia sessilis Schneid.	Rust	Malheur County	(2, 7)
Phaeoseptoria sp.	Leaf rot	Corvallis	17
Septoria bromi Sacc. var. phalaricola Sprague	Leaf spot	Astoria	10,370
PHALARIS TUBEROSA var. STENOPTERA (Hack.) Hitchc.	HARDING GRASS		
Helminthosporium sativum P.K. & B.	Leaf mold	Corvallis	64
Mycosphaerella tulasnei Jacz.	Leaf mold	Corvallis	396
Puccinia sessilis Schneid.	Rust	Corvallis	10,106
Rhizoctonia solani Kühn	Leaf rot	Corvallis	64
Phaeoseptoria sp.	Leaf rot	Corvallis	396
PHLEUM PRATENSE L.	TIMOTHY		
Claviceps purpurea (Fr.) Tul.	Ergot	Coast	1731
Heterosporium phlei Gregory	Purple leaf spot	Astoria, Corvallis	10,744
Puccinia graminis phlei-pratensis (Eriks. & Henn.) Stak. & Piem.	Stem rust	General	(2, 7)
Scolecotrichum graminis Fekl.	Leaf stripe	General	7543
Ustilago striaeformis (Westd.) Niessl	Stripe smut	General	1694
PHRAGMITES COMMUNIS Trin.	COMMON REED		
Puccinia phragmites (Schum.) Korn.	Rust	Young's Bay, Astoria	10,683
Scolecotrichum maculicola Ell. & Kell.	Eye spot	Young's Bay, Astoria	10,683
PLEUROPOGON REFRACTUS (A. Gray) Benth.	NODDING SEMAPHORE GRASS		
Ascochyta graminicola Sacc. var. brachypodii Trail	Leaf spot	Bergsvik Creek, Clatsop County	197
POA ANPLA Merr.	BIG BLUEGRASS		
Puccinia poae-sudeticae (West.) Jørstad	Bluegrass Rust	Hood River	(2)
P. rubigo-vera (DC) Wint.	Leaf rust	Hood River	(2, 7)
Selenophoma donacis var. stomaticola (Eauml.) Sprague & Johnson	Selenophoma speckle	The Dalles	115

PCA ANNUA L. Darlucula filum (Biv.) Cast.	ANNUAL BLUEGRASS On Puccinia poae- sudeticae	Corvallis	10,021
Fusarium culmorum (W.G. Sm.) Sacc.	Head mold	Warrenton	708
Entyloma irregulare Johann.	Black spot leaf smut	W. Oregon	10,233
Phycomycete Indet. e/	Purple speckle	Alderwood St. Pk.	352
Puccinia poae-sudeticae (West.) Jørstad	Bluegrass rust	W. Oregon	(2)
Septoria macropoda Pass.	Leaf spot	Corvallis	e/ 708
POA BOLAUDERI Vasey Puccinia poae-sudeticae (West.) Jørstad	BOLANDER BLUEGRASS Bluegrass rust	Wallow Mts.	10,077
POA CANBYI (Scribn.) Piper Erysiphe graminis DC	CANBY BLUEGRASS Powdery mildew	Union County	10,078
POA COMPRESSA L. Cladospodium herbarum (Pers.) Lk. Darlucula filum (Biv.) Cast.	CANADA BLUEGRASS Leaf mold On Puccinia poae- sudeticae	Alsea	10,755
Entyloma crastophilum Sacc.	Black spot leaf smut	Corvallis	10,007
Helminthosporium vagans Drechs.	Leaf spot	Bayview	821
Puccinia poae-sudeticae (West.) Jørstad	Bluegrass rust	Benton County	10,264
Scotlecotrichum graminis Fckl.	Leaf stripe	Corvallis	10,007
Septoria macropoda Pass. var. septulata (Cz. Frag.) Sprague S. oudemansii Sacc.	Leaf blotch Tan leaf spot	General Corvallis	10,007 10,946 385
POA GRACILLIMA Vasey (P. multinovae Piper) Ascochyta graminicola Sacc. var. holci Sacc.	SLENDER BLUEGRASS (Pacific bluegrass) Leaf spot	General Corvallis	10,946 385
Erysiphe graminis DC. Hendersonia culmicola var. intermedia Sacc.	Powdery mildew Leaf spot	Horse Tail Falls (Multnomah Co.) Columbia Gorge 7 mi. W. of The Dalles	10,280 e/ 116
Puccinia poae-sudeticae (West.) Jørstad	Bluegrass rust	Columbia Gorge	10,283
POA HOWELLII Vasey and Scribn. Septoria macropoda Pass.	HOWELL BLUEGRASS Leaf spot	Lower Columbia Riv.	10,080

POA JUNCIFOLIA Scribn. (P. brachyglóssa Piper)	ALKALI BLUEGRASS	Wasco County	10,229
Erysiphe graminis DC.	Powdery mildew	Near Celilo Falls	145
Fusarium sp.	Leaf rot, crown rot	Wasco County	10,228
Entyloma irregulare Johann.	Black spot leaf smut	Rufus (near)	10,941
Mycosphaerella tassiana (DeNot.) Johans.	Leaf spot	7 mi. W. of The Dalles	130
Phycomycete Indet. <u>e/</u>	Leaf spot	Wasco County	10,244
Puccinia poae-sudeticae (West.) Jørstad	Bluegrass rust		
Selenophoma donacis var. stomaticola (Bauml.) Sprague & Johnson	Selenophoma speckle	Friend, Rufus	10,760
POA KELLOGGII Vasey	KELLOGG BLUEGRASS	Jackson County	10,758
Septoria macropoda Pass.	Leaf spot		
POA LEPTOCOMA Trin.	EOG BLUEGRASS	Whitman Nat'l Forest	10,079
Puccinia poae-sudeticae (West.) Jørstad	Bluegrass rust		
POA MACRANTHA Vasey	SEASHORE BLUEGRASS		
Puccinia graminis Pers.	Stem rust	Warrenton	338
P. poae-sudeticae (West.) Jørstad	Bluegrass rust	Newport	(2, 7)
POA NEVOSA (Hook.) Vasey	WHEELER BLUEGRASS	Friend	874
Scolecotrichum graminis Fekl.	Leaf stripe		
POA NEVADENSIS Vasey	NEVADA BLUEGRASS	Seneca; Hart Mts.	10,696
Claviceps purpurea (Fr.) Tul.	Ergot	Blue Mts.	10,355
Septoria macropoda Pass. var. grandis Sprague	Leaf spot		
POA PUNCTRIS L.	FOAL BLUEGRASS		
Erysiphe graminis DC.	Powdery mildew	Klamath County	10,102
Puccinia poae-sudeticae (West.) Jørstad	Bluegrass rust	Klamath County	(2)
POA PRATENSIS L.	KENTUCKY BLUEGRASS		
Cercosporaella sp. <u>i/</u>	Brown eye leaf spot	Near Forest Grove; East Corvallis	453,789

i/ This apparently undescribed species will be described in a subsequent publication. It is apparently not rare in Oregon but obscured by the more prevalent Septoria and Helminthosporium spots.

<i>Corticium vagum</i> Berk. & Curt. [C. solani]	Brown patch	W. Oregon	10,965
<i>Darlucula filum</i> (Div.) Cast.	On rust	W. Oregon	10,237
<i>Entyloma crastophilum</i> Sacc.	Black spot leaf smut	Lincoln & Benton Co.	10,201
<i>Erysiphe graminis</i> DC.	Powdery mildew	Hepner	10,053
<i>Fusarium</i> (?) <i>nivale</i> (Fr.) Sor.	Snow mold	NW. Oregon	c/, g/
<i>Gleosporium graminum</i> Rostr.	Anthracnose	S. fork Alsea Riv. & Irish Bend (Benton Co.)	10,665
<i>Helminthosporium vagans</i> Drechs.	Leaf spot	Corvallis	10,121
<i>Phycomycete</i> Indet. e/	Red leaf speckle	Benton & Linn Cos.	789
<i>Puccinia poae-sudeticae</i> (West.) Jørstad	Bluegrass rust	General.	(2, 7)
<i>Rhizoctonia solani</i> Kühn	Leaf rot	Corvallis	c/
<i>Septoria macropoda</i> Pass. var. <i>septulata</i> (Gz. Frag.) Sprague	Leaf spot	W. Oregon	c/ 8301
<i>S. nodorum</i> Berk.	Glume blotch & leaf spot	W. Oregon	c/
<i>S. oudemansii</i> Sacc.	Leaf spot	Corvallis, Lobster Valley	10,237
<i>POA SCABRELLA</i> (Thurb.) Benth.	DESERT BLUEGRASS		
<i>Pleospore karstenii</i> Berl. & Vogl.	Leaf & culm mold	Tygh Ridge	10,759
<i>Uromyces dactylidis</i> Otth.	Tar rust	Cehoco Nat'l Forest	10,081
<i>POA SECUNDA</i> Presl (P. sandbergii Vasey)	SANDEBERG BLUEGRASS (Desert bluegrass)		
<i>Erysiphe graminis</i> DC.	Powdery mildew	E. Oregon	10,226
<i>Septoria macropoda</i> Pass. var. <i>grandis</i> Sprague	Leaf spot	General in E. Oreg.	c/ 10,343
<i>POA TRIVIALIS</i> L.	ROUGH BLUEGRASS		
<i>Helminthosporium poae</i> Baudys	Leaf spot	Astoria	10,330
<i>Puccinia poae-sudeticae</i> (West.) Jørstad	Bluegrass rust	Astoria	10,330
<i>Rhizoctonia solani</i> Kühn	Leaf rot	Corvallis	c/
<i>POA VASEYCHLOA</i> Scribn.	VASEY'S BLUEGRASS		
<i>Cladosporium herbarum</i> Lk.	Secondary leaf rot	Mayer Park	872
<i>Erysiphe graminis</i> DC.	Powdery mildew	Wasco & Sherman Cos.	114
<i>Phytophthora</i> sp.	Greasy brown spot	Mayer Park	872
<i>POLYPOGON MONSPELIENSIS</i> (L.) Desf.	RABBITFOOT GRASS		
<i>Erysiphe graminis</i> DC.	Powdery mildew	Biggs	8439

Plant Name	Location	Number
PUCCINELLIA DISTANS (L.) Parl. Cladosporium herbarum Lk.	Klamath Falls	807
PUCCINELLIA NUTKAENSIS (Presl) Fern. & Weath. Puccinia (?) rubigo-vera (DC.) Wint.	Klamath Falls	10,082
PUCCINELLIA NUTTALLIANA (Schult.) Hitchc. Puccinia rubigo-vera (DC.) Wint.	Union & Jackson Cos.	(7)
SCRIBNERIA BOLANDERI (Thurb.) Hack. Uromyces jacksonii Arth. & Fromme	-----	(2)
SECALE CEREALE L. Cercospora herpotrichioides Fron. Claviceps purpurea (Fr.) Tul. Erysiphe graminis DC. Fusarium culmorum (Sm.) Sacc. F. scirpi var. acuminatum (Ell. & Ev.) Wr. Helminthosporium sativum P.K. & B. Puccinia glumarum (Schm.) Eriks. & Henn.	Wasco & Union Cos. Scattered W. Oregon Wasco & Union Cos. Sherman County Moro	(14) 5223 5218 (1) (8) c/ c/ (6) Herb. Univ. of Idaho (1)
P. graminis Pers. P. rubigo-vera secalis (Eriks.) Carl.	----- Marion, Lincoln, & Linn Counties	(2)
Rhynchosporium secalis (Oud.) J.J. Davis Scolecotrichum graminis Fekl. Tilletia sp. Wojnowicia graminis (McAlp.) Sacc.	Corvallis Lincoln County Central Morrow Co. E. Oreg. prairies	259 257 Sent to W.S.C. (11) c/
SETARIA ITALICA (L.) Beauv. Cladosporium herbarum Lk. Epicoccum purpurascens Ehrbg.	Salem Corvallis	773 10,497
SETARIA VIRIDIS (L.) Beauv. Bacterium holci Kendrick [Phytomonas h. Bergey et al.]	Seaside	10,488

SITANION HANGENI. (Scribn.) J. G. Smith Ustilago sitanii Fisch.	HANSEN SQUIRRELTAIL Loose smut	Klamath Falls (D. C. Smith)	13, 165
SITANION HYSTRIX (Nutt.) J. G. Smith (S. californicum J. G. Smith) Ascochyta graminicola Sacc. var. holci Sacc. Puccinia glumarum (Schm.) Eriks. & Henn. P. pattersoniana Arth. P. rubigo-vera (DC.) Wint. Scolecotrichum graminis Fekl. Selenothoma denacis var. stomaticola (Bauml.) Sprague & Johnson S. passerinii Sacc.	SQUIRELTAIL (Bottle brush squirreltail) Leaf spot Stripe rust Rust Leaf rust Leaf stripe Selenothoma spot Leaf & Sheath spot	Mt. Hood Redmond N. Powder (Smith) E. Oregon Echo Mt. Hood (Adlard) Mt. Hood Nat'l Forest	10, 770 (2, 7) 350 (2, 7) 10, 083 10, 770 2/ 10, 382
SITANION JUBATUM J. G. Smith Puccinia glumarum (Schw.) Eriks. & Henn. P. rubigo-vera (DC.) Wint. Scolecotrichum graminis Fekl.	BIG SQUIRELTAIL Stripe rust Leaf rust Leaf stripe	Redmond S. Oregon Wasco County	(2, 7) (2, 7) 10, 163
SORGHUM VULGARE Pers. Sorosporium reilianum (Kühn) McAlp. Sphacelotheca sorghi (Lk.) Clinton	SORGHUM Head smut Kernel smut	Ashland -----	1201 (15)
SORGHUM VULGARE var. SUDANENSE (Piper) Hitchc. Sphacelotheca sorghi (Lk.) Clinton	SUDAN GRASS Kernel smut	S. Oreg., Eugene	11
SPOROBOLUS AIROIDES Torr. Puccinia luxuriosa Syd.	ALKALI SACATON (Hairgrass dropseed) Rust	Harney County	(2)
STIPA COLUMBIANA var. NELSONI (Scribn.) Hitchc. Septoria stipina Died.	COLUMBIA NEEDLEGRASS Leaf spot	Long Creek, Blue Mts.	10, 761
STIPA COMATA Trin. & Rupr. Puccinia stipae Arth.	NEEDLE AND THREAD Rust Leaf stripe	Umatilla & Sherman Counties Crook County Umatilla County	(2, 7) 10, 084 1368

STIPA OCCIDENTALIS Thurb.

Ustilago hypodytes (Schl.) Fr.

WESTERN NEEDLEGRASS

Stem smut

Steins Mts.
(4); (W.A.F.
236) d/

<i>P. rubigo-vera tritici</i> (Eriks. & Henn.) Karl.	Leaf rust	General	(2, 7)
<i>Rhizoctonia solani</i> Kühn	White foot rot	Lincoln, Benton, & Lane Counties	(10) <u>c/</u> 10,028
<i>Septoria tritici</i> Rob.	Leaf blotch	General	10,005
<i>Tilletia foetida</i> (Wal.) Liro	Stinking smut	General	(1)
<i>T. caries</i> (DC.) Tul.	Stinking smut	General	(1)
<i>Ustilago tritici</i> Rostr.	Loose smut	Scattered	5096
<i>Wojnowicia graminis</i> (McAlp.) Sacc.	Secondary root rot	Wasco & Union Cos.	(11) <u>c/</u>
TRITICUM DICOCUM Schrank			
<i>Cercospora herpotrichioides</i> Fron	Cercospora foot rot	Wasco County	(14) <u>c/</u>
<i>Fusarium culmorum</i> (W.G. Sm.) Sacc.	Root rot	Lincoln County	<u>c/</u>
<i>Puccinia glumarum</i> (Schm.) Eriks. & Henn.	Stripe rust	Moro	(2, 7)
<i>P. rubigo-vera tritici</i> (Eriks. & Henn.) Karl.	Leaf rust	Wasco County	<u>c/</u>
<i>Septoria tritici</i> Rob.	Leaf blotch	Granger	648
<i>Wojnowicia graminis</i> (McAlp.) Sacc. & D. Sacc.	Secondary root rot	Wasco & Union Cos.	(11) <u>c/</u>
TRITICUM DICOCUM Schrank. var FARRUM Bayle			
<i>Septoria tritici</i> Rob.	Leaf blotch	Benton County	10,726
TRITICUM DURUM Desf.			
<i>Cercospora herpotrichioides</i> Fron	Cercospora foot rot	Union & Wasco Cos.	<u>c/</u> , <u>c/</u>
<i>Fusarium culmorum</i> (W.G. Sm.) Sacc.	Root rot	Union County	<u>c/</u> , <u>c/</u>
<i>Wojnowicia graminis</i> (McAlp.) Sacc. & D. Sacc.	Secondary root rot	Union & Wasco Cos.	<u>c/</u> , <u>c/</u>
TRITICUM MONOCOCUM L.			
<i>Cercospora herpotrichioides</i> Fron	Cercospora foot rot	Union & Wasco Cos.	<u>c/</u> 10,017
<i>Wojnowicia graminis</i> (McAlp.) Sacc. & D. Sacc.	Secondary root rot	Union County	<u>c/</u> , <u>c/</u>
TRITICUM POLIUM L.			
<i>Mycosphaerella tulasnei</i> Jacz.	Leaf rot and blotch	Granger	10,679
TRITICUM SPALTA L.			
<i>Cercospora herpotrichioides</i> Fron	Cercospora foot rot	Union County	<u>c/</u> , <u>c/</u>
<i>Fusarium culmorum</i> (W.G. Sm.) Sacc.	Root rot	Lincoln County	<u>c/</u> , <u>c/</u>
<i>Helminthosporium sativum</i> P.K. & B.	Foot rot	Lincoln County	<u>c/</u>
<i>Puccinia graminis</i> Pers.	Stem rust	Lincoln County	7602

<i>P. rubigo-vera tritici</i> (Eriks. & Henn.) Carl.	Leaf rust	Union, Wasco, and Lincoln Counties	7611
<i>Rhizoctonia solani</i> Kühn	White root rot	Alsea Riv. Valley	c/ 10,400
<i>Septoria nodorum</i> Berk.	Leaf spot	Lincoln County	10,365
<i>S. tritici</i> Rob.	Leaf blotch	Lincoln County	f/ c/g/
<i>Ustilago tritici</i> Rostr.	Loose smut	Lincoln County	
<i>Wojnowicia graminis</i> (McAlp.) Sacc. & D. Sacc.	Secondary root rot	Union County	
<i>TRITICUM TURCIDUM</i> L.	POLLARD WHEAT	Granger	10,680
<i>Septoria tritici</i> Rob.	Leaf blotch		
<i>ZEA MAYS</i> L.	MAIZE (Indian corn)		
<i>Epicoccum neglectum</i> Desm. (? Saprophyte)	Leaf rot	Benton & Lincoln Cos.	10,008
<i>Fusarium culmorum</i> (W. G. Sm.) Sacc.	Root rot	W. Oregon	(8)
<i>Helminthosporium turcicum</i> Pass.	Leaf blight	Lincoln County	e/ g/
<i>Phyodermma zaeae-maydis</i> Shaw	Brown soot	Benton County	(3)
<i>Seroperium reilianum</i> (Kühn) McAlp.	Head smut	Willamette Valley	
<i>Ustilago zaeae-mays</i> (DC.) Wint.	Smut	E. & S. Greg.	Owens and Zundel

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THE PLANT DISEASE REPORTER

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BUREAU OF PLANT INDUSTRY, UNITED STATES DEPARTMENT OF AGRICULTURE

SUPPLEMENT 135

DISEASES OF PLANTS REPORTED IN TEXAS SINCE 1933

June 15, 1942

The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

DISEASES OF PLANTS REPORTED IN TEXAS SINCE 1933

Compiled by G. E. Altstatt, Plant Pathologist, Division of Plant Pathology and Physiology, Texas Agricultural Experiment Station.

Plant Disease Reporter
Supplement 135

June 15, 1942

This list includes plant diseases found by members of the Division of Plant Pathology and Physiology since the publication of the Check List of Plant Diseases^{1/} in 1933. New diseases reported each year have been included in the annual report of the Texas Station up to and including 1937. Since that time they have been reported only through the annual report to the Division of Mycology and Plant Disease Survey. New host plants of the cotton root rot fungus since the publication of the list of susceptible and non-susceptible plants in 1936^{2/} are also included in this compilation.

Material or cultures in some instances were sent to the Division of Mycology and Disease Survey and other authorities for identification or confirmation. Herbarium specimens are available in some cases.

ABELIA GRANDIFLORA	Chlorosis	Physiological
AGROSTIS STOLONIFERA	Chlorosis	Physiological
	Leaf blight	Piricularia grisea (Cke.) Sacc.
AILANTHUS GLANDULOSA	Twig blight	Diplodia natalensis Pole-Evans
ALBIZZIA JULIBRISSIN	Root rot	Phymatotrichum omnivorum (Shear) Dug.
ALEURITES FORDII	Crown canker	Diplodia natalensis Pole-Evans
	Seedling blight	Sclerotium rolfsii Sacc.
ALLIUM ASCALONICUM	Yellow dwarf	Virus
ALLIUM CANADENSE	Yellow dwarf	Virus
ALLIUM CEPA	Bulb rot	Fusarium sp.
	Leaf spot	Aspergillus nidulans (Eidam) Winter
	Purple blotch	Macrosporium porri Ell.
	Yellow dwarf	Virus
ALLIUM SATIVUM	Bulb rot (dry)	Aspergillus sp.
		Diplodia sp.
		Fusarium sp.
		Helminthosporium sp.
		Penicillium sp.
		Sclerotium bataticola Taub.
		Trichoderma sp.
	Bulb rot (soft)	Bacillus carotovorus L.R. Jones

^{1/} Taubenhaus, J. J. and W. N. Ezekiel. Trans. Texas Acad. Sci. 16 (1931-1932): 5-118. Austin, Texas. 1933.

^{2/} Taubenhaus, J. J. and W. N. Ezekiel. A rating of plants with reference to their relative resistance or susceptibility to Phymatotrichum root rot. Texas Agr. Exp. Stat. Bull. 527. 50 pp. 1936.

ALLIUM VINEALE	Yellow dwarf	Virus
ALTHEA ROSEA	Rust	Puccinia malvacearum C. E. Bertero
AMARANTHUS CAUDATUS	Curly top	Virus
AMARANTHUS RETROFLEXUS	Fern-leaf mosaic	Virus
AMARANTHUS SPINOSUS	Root knot	Heterodera marioni (Cornu) Goodey
AMARANTHUS TRICOLOR	Curly top	Virus
AMARYLLIS BELLADONNA	Spotted wilt	Virus
AMBROSIA SP.	Stem rot	Sclerotium bataticola Taub.
AMBROSIA ARTEMISIFOLIA	Yellow	Virus
AMPELOPSIS ACCUTIFOLIA	Leaf spot	Tubercularia nigricans (Bull.) Sacc.
AMPELOPSIS TRICUSPIDATA	Leaf spot	Cercospora pustula Cke.
AMYGDALUS PERSICA	Canker	Phoma persicae Sacc.
ANODA HASTATA	Rust	Puccinia sp.
ANTIRRHINUM MAJUS	Crown rot	Myrothecium roridum Tode
	Root & stem rot	Pythium sp.
ARACHIS HYPOGAEA	Witches' broom	Undet.
	Rust	Puccinia arachidis Speg.
ASTRAGALUS MOLLISSIMUS	Crown rot	Fusarium sp.
ATRIPLEX AVENARIA	Curly top	Virus
ATRIPLEX LENTIFORMIS	Curly top	Virus
ATRIPLEX PATULA	Curly top	Virus
AVENA SATIVA	Root lesion	Pratylenchus pratensis (de Man) Filipjev
AZALEA SP.	Flower spot	Ovulinia azaleae Weiss
	Leaf gall	Exobasidium vaccinii (Fckl.) Wor.
BACCHARIS NEGLECTA	Root rot	Phymatotrichum omnivorum (Shear) Dug.
BAMBUSA SP.	Leaf spot	Coniosporium shiraianum (Syd.) Bub.
BARBAREA VULGARIS	Curly top	Virus
BAUHAVIA (ORCHID TREE)	Leaf spot	Colletotrichum sp.
BEGONIA SP.	Crown rot	Rhizoctonia solani Kühn
BETA VULGARIS	Curly top	Virus
	Mosaic	Virus
BIGNONIA RADICANS	Leaf spot	Myrothecium roridum Tode
BOERHAAVIA ERECTA	Black rot	Bacterium campestre (Pammel) E.F.S.
BRASSICA ALBA	Root knot	Heterodera marioni (Cornu) Goodey
BRASSICA CAMPESTRIS	Crown gall & witches' broom	Bacterium tumefaciens Smith & Townsend
BRASSICA RAPA	Anthraxnose	Colletotrichum higginsianum Sacc.
	Leaf spot	Cercospora albomaculans (Ell. & Ev.) Sacc.
	Mosaic	Virus
	Leaf spot	Cylindrosporium brassicae Fautr & Rouss.

BRASSICA JUNCEA	White rust	Albugo (Cystopus) occidentalis (Wilson) Sacc. & Trav.
BROMUS UNICLOIDES	Smoot	Ustilago bromivora (Tul.) Fisch.
BRYOPHYLLUM SP.	Leaf spot	Alternaria tenuis Nees
BUCHLOE (BULBILIS) DACTYLOIDES	Leaf spot	Cercospora seminalis Ell. & Ev.
BUXUS SEMPERVIRENS	Root lesion	Pratylenchus pratensis (de Man) Filipjev
CALENDULA OFFICINALIS	Chlorosis	Physiological
	Spotted wilt	Virus
CALLICARPA AMERICANA	Mosaic	Virus
CALLISTEPHUS CHINENSIS	Downy mildew	Basidiophora entospora Roze & Cornu
CAMELLIA	Leaf spot	Colletotrichum gloeosporioides Penz.
	Root knot	Heterodera marioni (Cornu) Goodey
CAMELLIA SASANQUA	Leaf gall	Exobasidium camelliae Shirai
CANNA INDICA	Rust	II, undet.
CAPSICUM ANNUUM	Anthrachnose	Gloeosporium piperatum Ell. & Ev.
	Black mold	Cladosporium herbarum (Pers.) Lk.
CAPSICUM ANNUUM	Curly top	Virus
	Early blight	Alternaria solani (Ell. & Mart.) Jones & Grout
	Spotting	Bacterium vesicatorium Doidge
CAPSICUM FRUTESCENS	Mosaic	Virus
CAPSICUM FRUTESCENS VAR. GROSSUM	Curly top	Virus
CARTHAMUS TINCTORIUS	Leaf spot	Septoria carthami Muras
CASSIA ARTEMISIOIDES	Stem & twig blight	Diplodia natalensis Pole-Evans
	Root knot	Heterodera marioni (Cornu) Goodey
CASSIA OCCIDENTALIS	Leaf spot	Cercospora sp.
CATALPA SP.	Chlorosis	Physiological
CELOSIA ARGENTEA	Curly top	Virus
CELOSIA ARGENTEA CRISTATA	Curly top	Virus
CELTIS SP.	Limb canker	Septobasidium sydowii Couch
	Root rot	Armillaria mellea Vahl. ex Fr.
CELTIS MISSISSIPPIENSIS	Leaf spot	Ramularia celtidis Ell. & Kellerm.
	Leaf spot	Septoria sp.
CERCIS SP.	Stem canker	Valsaria insitiva Ces. & DeNot.
CHAMAECYPARIS OBTUSA	Blight	Pestalozzia funerea Desm.
CHRYSANTHEMUM SP.	Root lesion	Pratylenchus pratensis (deMan) Filipjev
	Stem & foot rot	Fusarium sp.

CHRYSANTHEMUM LEUCANTHEMUM	Pink Mold	Fusarium martii App. & Wr. var. minus Sherb. Fusarium semitectum Berk. & Rav.
CICHORIUM ENDIVIA	Tip blight	Bacterium (undet.)
CITRULLUS VULGARIS	Black rot	Helminthosporium (undet. sp.)
	Charcoal rot	Sclerotium bataticola Taub.
	Leaf blight	Macrosporium cucumerinum Ell. & Ev.
CITRUS SP.	Black melanose	Undetermined
	Blue & green mold	Penicillium sp.
	Gummosis	Undetermined
	Phytophthora rot	Phytophthora parasitica Dastu
	Leaf spot	Colletotrichum gloeosporioides Penz.
	Leaf spot	Septoria sp.
	Sooty blotch	Gloeodes pomigena (Schw.) A.S. Colby
CITRUS GRANDIS	Chlorosis	Physiological
	Gummosis	Undetermined
	Root rot	Phytophthora sp.
	Scaly bark	Virus
	Wither tip	Colletotrichum gloeosporioides Penz.
CITRUS LIMONIA	Scab	Sphaceloma fawcettii Jenkins
	Stem-end rot	Diplodia natalensis Pole-Evan
	Twig blight	Tryblidiella rufula (Spreng) Sacc. (saprophytic?)
CITRUS NOBILIS UNSHIU	Scab	Sphaceloma fawcettii Jenkins
CITRUS SINENSIS	Chlorosis	Physiological
	Damping-off of seedlings	Nematodes
	Fruit rot	Fusarium limonis Briosi
	Sooty mold	Capnodium sp.
	Splitting	Non-parasitic
COLEUS SP.	Crown rot	Rhizoctonia solani Kühn
COPROSMA BOWERI	Leaf spot	Undet. Macrosporium
COREOPSIS SP.	Crown rot	Sclerotium rolfsii Sacc.
COTONEASTER	Stem blight	Macrophoma stage of Physalospora obtusa (Schw.) Cke.
	Twig blight	Sphaeropsis malorum Pk. [Physalospora obtusa]
CUCUMIS MELO	Curly top	Virus
	Leaf spot	Cercospora sp.
CUCUMIS SATIVUS	Curly top	Virus
	Gray rot	Diplodia sp.
CUCURBITA MAXIMA	Leaf spot & stem rot	Phoma subvelata Sacc.

CUPRESSUS SP.	Leaf blight	Macrophoma cupressi (Cke. & Harkn.) Berl. & Bogl.
CYDONIA JAPONICA	Twig blight	Sphaeropsis malorum Pk.
CYNODON DACTYLON	Smut	Dothiorella ribis (Fuck.) Sacc.
DAHLIA	Spotted wilt	Ustilago cynodontis Henn.
	Verticillium wilt	Virus
DATURA METELOIDES	Spotted wilt	Verticillium albo-atrum Reinke & Berth.
DATURA TATULA		Virus
	Spotted wilt	Alternaria crassa (Sacc.) Rands
DAUCUS CAROTA	Aster yellows	Virus
	Leaf blight	Virus
		Macrosporium carotae Ell. & Langlois
DIANTHUS SP.	Anthrachnose	Vermicularia sp.
DIANTHUS BARBATUS	Curly top	Virus
DIANTHUS CARYOPHYLLUS	Curly top	Virus
	Leaf spot & blight	Alternaria dianthi Stevens & Hall
	Stem blight	Vermicularia herbarum (Pers.) Lk.
DICIDIA TERES	Rust	Uromyces spermacoces (Schw.) Curt.
DIOSPYROS KAKI	Wilt	Verticillium albo-atrum Reinke & Berth.
DIOSPYROS VIRGINIANA	Wilt	Cephalosporium sp.
	Wood decay	Sphaeropsis malorum Pk.
DOLICHOS SPHAEROSPERMUS	Root rot	Rhizoctonia sp.
	Damping-off	Various fungi
ECHINOCEREUS CHLORANTHUS	Decay	Helminthosporium sp.
ECHINOCCHLOA CRUSGALLI	Dwarf	Virus
ERIGERON CANADENSIS	Mosaic	Virus
ESCHSCHOLTZIA CALIFORNICA	Collar rot	Alternaria sp.
	Curly top	Virus
EUCALYPTUS LONGIROSTRIS		Phymatotrichum omnivorum (Shear) Dug.
ALGERIENSIS	Root rot	Heterodera marioni (Cornu) Goodey
EUCONYMUS SP.	Root knot	Alternaria sp.
		Stilbum cinnabarinum Mont.
EUSTONIA RUSSELLIANUM	Stem blight	Choanephora cucurbitarum (B. & Br.) Thaxter
FICUS CARICA	Canker	Cercospora bolleana (Thüm.) Speg.
	Fruit rot	Virus
	Leaf spot	Botryosphaeria ribis Gross. & Dug.
	Mosaic	Capnodium sp.
	Stem blight	Aphelenchoides fragariae (Ritzema Bos) Christie
	Sooty mold	
FRAGARIA SP.	Crimp	

FRAGARIA SP.	Leaf spot	Dendrophoma obscurans (Ell. & Ev.) H.W. Anderson
FRAXINUS BERLANDIERI	Violet root rot	Rhizoctonia crocorum (Pers.) DC.
FRAXINUS TEXENSIS	Leaf spot	Cercospora sp.
FRAXINUS VELUTINA	Rust	Puccinia peridermiospora (Ellis & Tr.) Arth.
GARDENIA FLORIDA	Sooty mold	Fumago vagans Pers.
GILIA RUBRA	Bud drop	Physiological
	Meadow nematode	Pratylenchus pratensis (de Man) Filipjev
GLADIOLUS SP.	Dry rot	Fusarium sp.
	Root knot	Heterodera marioni (Cornu) Goodey
GLOXINIA SPECIOSA	Spotted wilt	Virus
GOMPHRENA GLOBOSA	Curly top	Virus
GOMPHRENA NITIDA	Curly top	Virus
GOSYPIUM HIRSUTUM	Crown gall	Bacterium tumefaciens Smith & Townsend
	Phyllosticta leaf spot	Phyllosticta gossypina Ell. & Mart.
	Moldy leaf spot	Cercospora gossypina Cke.
	Wilt	Verticillium albo-atrum Reinke & Berth.
HELIANTHUS ARGOPHYLLUS	Downy mildew	Plasmopara halstedii (Farl.) Berl.
	Leaf spot	Septoria helianthi Ell. & Kellerm.
HIBISCUS SABDARIFFA	Leaf spot	Cercospora polymorpha Bub.
HIBISCUS SP.	Anthraxnose	prob. Colletotrichum hibisci Poll.
HICORIA PECAN	Leaf spots	Mycosphaerella dendroides (Cke) Demaree & Cole
		Mycosphaerella caryigena Demaree & Cole (Cercospora caryigena (Ell. & Ev.) Höhn.)
		Pestalozzia uvicola Speg.
HOLCUS SP.	Blight	Diplodia natalensis Pole-Evans
	Root and crown rot	Pythium arrhenomanes Drechs.
HOLCUS HALPENSIS	Smut	Sphacelotheca cruenta (Kühn) Potter
HOLCUS SORGHUM	Streak	Bacterium holcicola Elliot
	Seedling blight	Colletotrichum graminicolum (Ces.) Wils.
		Fusarium moniliforme Sheld.
	Leaf spot	Phyllosticta sorghina Sacc.
	Lodging, charcoal rot	Sclerotium bataticola Taub.
	Root rot	Pythium arrhenomanes Drechs.

HOLCUS SORGHUM SUDANENSIS	Crown rot Leaf rust Leaf stripe Southern blight	Colletotrichum lineola Cda. Puccinia sorghi Schw. Bacterium andropogoni E.F.S. Sclerotium rolfsii Sacc.
HYDRANGEA SP.	Rust	Puccinia hydroctyles Cke.
HYDROCOTYLE SP.	Stem blight	Phoma herbarum West.
HYMENOCLEA MONOGYNA		Macrosporium puccinioides Ell. & Ev.
	Rust	Puccinia splendens Vize
ILEX DECIDUA	Leaf spot	Rhytisma ilicinola Schw.
ILEX OPACA	Leaf spot Sooty mold	Phyllosticta opaca Ell. & Ev. Fumago sp.
IPOMOEA BATATAS	Curly top	Virus
IPOMOEA PANDURATA	Curly top	Virus
IPOMOEA PURPUREA	White rust	Albugo sp.
IPOMOEA TRIFIDA	Curly top White rust	Virus Albugo ipomoeae-panduranae (Schw.) Sw.
IRIS SP.	Rust	Puccinia iridis (DC.) Rabh.
JUNIPERUS MEXICANA	Needle blight	Stagonospora pini Grove
KENTIA SP.	Anthracnose	Gloeosporium allescheri Bres.
KOELREUTERIA BIPINNATA	Root rot	Phymatotrichum omnivorum (Shear) Dug.
LACTUCA CANADENSIS	Spotted wilt	Virus
LACTUCA GRAMINIFOLIA	Spotted wilt	Virus
LACTUCA SATIVA	Spotted wilt	Virus
LAGERSTROEMIA INDICA	Chlorosis Powdery mildew	Physiological Oidium sp., and Erysiphe lagerstroemiae West
	Sooty mold	Fumago vagans Pers.
LATHYRUS ODORATUS	Leaf mold	Cladosporium album Dowson
LEPACHYS COLUMNIFERA	Violet root rot	Rhizoctonia crocorum (Pers.) DC.
LESPEDeza STIPULACEA	Southern blight	Sclerotium rolfsii Sacc.
LIGUSTRUM SP.	Leaf spot Sooty mold	Pestalozzia guepini Desm. Fumago sp.
LIGUSTRUM AMURENSE	Chlorosis	Physiological
LIGUSTRUM LUCIDUM COMPACTUM	Crown gall	Bacterium tumefaciens Smith & Townsend
	Root knot	Heterodera marioni (Cornu) Goodey
LILIUM LONGIFLORUM	Bud rot Mosaic Scale rot	Fusarium sp. Virus Penicillium sp.
LINUM USITATISSIMUM	Boll & leaf spots Damping-off Pasma Rust	Alternaria sp. Sclerotium rolfsii Sacc. Phlyctaena linicola Speg. Melampsora lini (Pers.) Lév.
LOBELIA CARDINALIS	Curly top Spotted wilt	Virus Virus
LOBELIA INFLATA	Curly top	Virus

LOBELIA SPICATA	Curly top	Virus
LOBELIA SPLENDENS	Spotted wilt	Virus
LOLIUM MULTIFLORUM	Rust	Puccinia coronata Cda.
LONICERA SP.	Leaf spot	Cercospora antipus Ell. & Holw.
LUPINUS SUBCARNOSUS	Spotted wilt	Virus
LYCOPERSICON ESCULEN- TUM	Bacterial speck	Bacterium punctulans Bryan
	Buckeye rot	Phytophthora parasitica Dastur
	Bunchy top	Virus
	Catface	Undetermined
	Core rot	Undetermined
	Crown rot & stem canker	Alternaria sp. Helminthosporium sp. Phoma destructiva Plowr.
	Curly top	Virus
	Damping-off	Pythium sp. Rhizoctonia sp. Fusarium sp.
	Early blight	Alternaria solani (Ell. & Mart.) Jones & Grout
	Fern leaf	Virus
	Filiform leaf	Virus
	Fruit mottle	Undetermined
	Fruit pox	Undetermined
	Fruit rots:	Alternaria sp.
	(Smoky rot)	Aspergillus flavus Link (produces perithecia)
	(Yellow rot)	Aspergillus flavus Link (produces sclerotia) Aspergillus luteo-niger (Lutz) Thom & Church Aspergillus ochraceus Wilhelm Aspergillus nidulans (Eidam) Wint
	(Green rot)	Aspergillus tamaris Kita Aspergillus terreus Thom
	(Botrytis rot)	Botrytis cinerea Auct.
	Mold	Botryosporium pulchrum Cda. Chaetomium bostrychodes Zopf
	(Brown mold)	Fusarium sp.
	(Pink mold)	Fusarium sp.
	(Myrothecium rot)	Myrothecium sp.
	(Inkspot rot)	Pestalozzia sp.
	(Phoma rot)	Phoma destructiva Plowr.
	(Soft rot)	Pythium sp. Rhizopus nigricans Ehr.
	Sclerotium rot	Sclerotinia minor Jagger
	Black rot	Thielaviopsis basicola (Berk.) Ferraris Vermicularia dematium (Pers.) Fr.

LYCOPERSICON ESCULEN-
TUM

Leaf roll	Virus ?
Milky leaf	Undetermined
Mosaic (Aucuba)	Virus
Mosaic (crinkle)	Tobacco virus #1
Mosaic (cucumber)	Virus
Mosaic (leaf curling)	Virus
Mosaic (curly)	Virus
Mosaic (dwarf)	Virus
Mosaic (yellow)	Virus
Mosaic (rugose)	Virus
Nailhead rust	Alternaria tomato (Cke.) (Macrosporium tomato Cke.)
Puff	Non-parasitic
Spotted wilt	Virus
Streak	Virus
Tip blight	Virus
Yellows	Virus

LYSIMACHIA NUMMULARIA
MAGNOLIA SP.

Root knot	Heterodera marioni (Cornu) Goodey
Leaf spot	Heterosporium magnoliae Weedon
Leaf spot	Alternaria tenuis Nees
Leaf spot	Epicoccum nigrum Link
Leaf spot	Exophoma magnoliae Weedon
Leaf spot	Pestalozzia guepini Desm.
Leaf spot	Cephaleuros virescens Kze.
Root knot	Heterodera marioni (Cornu) Goodey
Sooty blotch	Gloeodes pomigena (Schw.) A.S. Colby

MAGNOLIA GRANDIFLORA
MALUS SYLVESTRIS

Flyspeck	Leptothyrium pomi (Mont. & Fr.) Sacc.
Twig blight	Sclerotinia sclerotiorum (Lib.) Mass.
Anthracnose	Colletotrichum gloeosporioides Penz.

MALVA VISCUS SP.

Leaf spot	Myrothecium roridum Tode
Spotted wilt	Virus
Spotted wilt	Virus
Downy mildew	Peronospora trifoliorum de Bary
Leaf spot	Cercospora subsessilis Syd.
Twig & stem blight	Fusarium lateritium Nees Eutypella stellulata (Fr.) Sacc.

MATTHIOLA BICORNIS

MEDICAGO SATIVA

MELIA AZEDARACH

Leaf spot	Ascochyta meliloti (Trel.) Davis
Anthracnose	Colletotrichum trifolii S.M. Bain
Leaf spot	Phleospora maculans (Bereng.) Allescher

MORUS NIGRA

Leaf spot	Phleospora maculans (Bereng.) Allescher
Blight	Bacterium mori (Boyer & Lambert) emend. E.F.S.

MORUS RUBRA

MUSA SP.	Root lesion	Rotylenchus multicinctus (Cobb) Filipjev
NANDINA DOMESTICA	Leaf spot	Gloeosporium sp.
NICOTIANA TABACUM	Mosaic	Virus
NICOTIANA LONGIFLORA	Curly top	Virus
NICOTIANA RUSTICA	Curly top	Virus
ORYZA SATIVA	Black kernel	Curvularia lunata (Wakker) Boedijn
	Leaf smut	Entyloma oryzae H. & P. Syd.
	Rotten neck	Piricularia oryzae Bri. & Cav.
	Dwarf	Virus ?
	Chalky dry rot	Caused by stink bug injury fol- lowed by two species of Fusaria identified by C. D. Sherbakoff as F. moniliforme Sheld. and F. semitectum Berk. & Rav.
OXALIS SP.	Rust	Aecidium oxalidis Thüm.
OXALIS CORNICULATA	Curly top	Virus
OXALIS STRICTA	Curly top	Virus
OXALIS VIGLACEA	Curly top	Virus
PANICUM CAPILLARIOIDES	Leaf spot	Stegonospora curvula Bomm. & Rous
PAPAVER NUDICAULE	Curly top	Virus
PAPAVER ORIENTALE	Curly top	Virus
PASPALUM DIGITATUM	Head mold	Fusarium sp.
PELARGONIUM SP.	Leaf spot	Alternaria tenuis Nees.
PELARGONIUM DOMESTICUM	Spotted wilt	Virus
PELARGONIUM GRAVEOLENS	Spotted wilt	Virus
PERSEA AMERICANA	Fruit rot	Colletotrichum sp.
	Fruit spot	Cercospora sp.
PHASEOLUS LATIFOLIUS	Curly top	Virus
PHASEOLUS LUNATUS	Ashy stem	Macrophomina phaseoli (Maubl.)
MACROCARPUS	blight	Ashby
	Curly top	Virus
PHASEOLUS VULGARIS	Ashy stem	Macrophomina phaseoli (Maubl.)
	blight	Ashby
	Curly top	Virus
	Halo blight	Bacterium medicaginis (Sackett) E.F.S.
	Leaf spot	Cercospora canescens E. & M.
	Powdery mildew	Erysiphe polygoni DC.
	Meadow nematode	Pratylenchus pratensis (de Man) Filipjev
	Yellow mosaic	Virus
PHILADELPHUS GRANDI- FLORUS	Root rot	Phymatotrichum omnivorum (Shear) Dug.
PHOENIX CANARIENSIS	(False smut)	Graphiola phoenicis (Moug.) Poit.
	Root knot	Heterodera marioni (Cornu) Goodey
PHYTOLACCA AMERICANA	Violet root rot	Rhizoctonia crocorum (Pers.) DC.
PHYTOLACCA DECANDRA	Fern-leaf mosaic	Virus
	Mosaic	Virus
PHYSALIS HEDERAEFOLIA	Crinkle mosaic	Virus

PICEA ENGELMANNI	Blight	Pestalozzia sp.
PINUS SP.	Sooty mold	Undetermined
	Twig blight	Macrophoma magnifructa (Pk.) Sacc.
PINUS RESINOSA	Blight	Pestalozzia funerea Desm.
PINUS PALUSTRIS	Rust	Peridermium carneum (Bosc) Symb. & Earle
PINUS TAEDA		Lecanosticta acicola (Thüm.) Syd.
PISUM SATIVUM	Leaf blight	Cladosporium pisi Cu. & Ma.
PLATANUS SP.	Anthraxnose	Gnomonia veneta (Sacc. & Speg.) Kleb.
PLUMBAGO SP.	Root knot	Heterodera marioni (Cornu) Goodey
POINCIANA GILLIESII	Root rot	Phymatotrichum omnivorum (Shear) Dug.
POLYANTHES TUBEROSA	Root knot	Heterodera marioni (Cornu) Goodey
POPULUS SP.	Leaf spot	Septoria populi Sacc.
	Twig blight	Cytospora chrysosperma (Pers.) Fr.
	Leaf spot	Alternaria tenuis Nees.
	Canker	Cytospora chrysosperma (Pers.) Fr.
POPULUS ALBA NIVEA	Root rot	Phymatotrichum omnivorum (Shear) Dug.
PRUNUS DOMESTICA	Leaf spot	Cercospora circumscissa Sacc.
PRUNUS SP.	Chlorosis	Physiological
	Limb canker	Bacterium pruni E.F.S.
PRUNUS ANGUSTIFOLIA	Brown rot	Sclerotinia fructicola (Wint.) Rehm
	Rust	Tranzschelia pruni-spinosae (Pers.) Diet.
PRUNUS VIRENS	Root rot	Phymatotrichum omnivorum (Shear) Dug.
PSEDERA QUINQUEFOLIA		Guignardia bidwellii (Ell.) Viala & Ravaz
PSEUDOTSUGA DOUGLASII		Botrytis douglasii Tub.
PYRACANTHA SP.	Root rot	Phymatotrichum omnivorum (Shear) Dug.
PYRUS COMMUNIS	Leaf spot	Entomosporium maculatum Lévl.
	Sooty blotch	Gloeodes pomigena (Schw.) A. S. Colby
QUERCUS SP.	Leaf spot	Phomopsis sp.
QUERCUS MARILANDICA		Hypoderma ilicinum de N.
QUERCUS STELLATA	Twig blight	Morenella quercina (Ell. & Mart.) Theissen.
QUERCUS VIRGINIANA	Root decay	Xylaria sp.
	Die-back	Trabutia erythrospora (Berk. & Curt.) Cke.
		Coryneum sp.
		Pseudovalsa sigmoidea (Cke. & Ell.) Sacc.
RANUNCULUS FASCICULARIS	Curly top	Virus

RANUNCULUS PUSILLUS	Curly top	Virus
RANUNCULUS SCELERATUS	Curly top	Virus
RHEUM RHAPONTICUM	Oak root rot	Amillaria mellea Vahl. ex Fr.
RHUS VIMINALIS	Root rot	Phymatotrichum omnivorum (Shear) Dug.
RHYNCHOSPORA COMICULATA		
VAR. INTERIOR	Smut	Testicularia cyperi Klotzsch
RIVINA HUMULIS	Violet root rot	Rhizoctonia crocorum (Pers.) DC.
ROSA SP.		Alternaria brassicae (Berk.) Sacc. var. microspora P. Brun.
	Black spot	Diplocarpon rosae Wolf
	Cane canker	Phomopsis incarcerationata (Sacc.) Höhn.
	Cane canker	Pestalozzia rosae Westd.
	Cane spot	Sclerotiopsis concava (Desm.) Shear & Dodge
	Crown canker	Diplodia natalensis Pole-Evans
	Crinkle	Virus
	Die-back	Diplodia rosae Berk. & Curt.
	Die-back	Physalospora obtusa (Schw.) Cke. (Sphaeropsis malorum Pk.)
	Hairy root	Phytomonas rhizogenes Riker et al.
	Leaf spot	Mycosphaerella rosicola (Pass.) B. H. Davis
	Leaf spot	Sclerotiopsis lythri (Desm.) Shear & Dodge
	Powdery mildew	Sphaerotheca pannosa (Wallr.) Lév.
	Rust	Phragmidium sp. (not P. americanu nor P. rosae-setigerae)
	Rust	Phragmidium americanum (Pk.) Diet
	Stem canker	Coniothyrium fuckelii Sacc.
	Streak	Virus
	Twig blight	Botryosphaeria ribis Gross. & Dug
ROSA MANETTI	Mosaic	Virus
ROSA BRACTEATA	Black spot	Diplocarpon rosae Wolf
ROSA SETIGERA	Rust	Phragmidium rosae-setigerae Diet.
RUBUS SP.	Double blossom	Fusisporium rubi Wint.
	Die-back	Coniothyrium sp.
	Leaf spot	Septoria sp.
	Sooty blotch	Gloeodes pomigena (Schw.) Colby
RUBUS TRIVALIS	Violet root rot	Rhizoctonia crocorum (Pers.) DC.
SALIX DISCOLOR	Stem and twig blight	Diplodia salicina Lév.
SAMBUCUS SP.	Twig canker	Diplodia sp.
SCHIZANTHUS PINNATUS	Spotted wilt	Virus
SENECIO CRUENTUS	Spotted wilt	Virus
SEQUOIA GIGANTEA	Blight	Pestalozzia funerea Desm.
SMILAX BONA-NOX	Leaf spot	Cercospora smilacina Sacc.
SOLANDRA GUTTATA	Leaf spot	Cladosporium sp.

SOLANUM CAROLINENSE	Curly top	Virus
SOLANUM MELONGENA	Bunchy top	Virus
	Curly top	Virus
	Sooty mold	Fumago sp.
	Seedling wilt	Pratylenchus pratensis (de Man)
		Filipjev
	Yellows	Virus
SOLANUM NIGRUM	Curly top	Virus
SOLANUM ROSTRATUM	Curly top	Virus
SOLANUM TUBEROSUM	Black heart	Physiological
	Calico	Virus
	"Haywire"	Virus
	Curly top	Virus
	Interveinal	
	mild mosaic	Virus
	Rugose and	Virus
	crinkle mosaic	
	Spindle tuber	Virus
	Tuber rot	Fusarium sulphureum Schl.
SPINACIA CLERACEA	Curly top	Virus
	Fusarium wilt	Fusarium spinaciae Sherb.
	Rhizoctonia	
	root rot	Rhizoctonia sp.
	White rust	Albugo (Cystopus) occidentalis (Wilson) Sacc. & Trav.
SPOROBOLUS SP.	Leaf spot	Helminthosporium ravenelii Berk. & Curt.
STATICE SP.		Cercospora staticis Lobik
STATICE DUMOSA	Leaf spot	Phyllosticta armeriae Allesch.
STENOTAPHRUM SECUNDA- TUM	Brown patch	Rhizoctonia solani Kühn
	Foot rot	Helminthosporium sp.
TAMARIX ARTICULATA	Root rot	Phymatotrichum omnivorum (Shear) Dug.
THUJA SP.	Chlorosis	Physiological
	Damping-off	Rhizoctonia sp.
	Leaf blight	Macrosporium helminthosporioides (Cda.) Sacc. & Trav.
THYELLA THAMNIFOLIA	Mosaic	Virus
TRAGIA URENS	Stem blight	Sclerotium sp.
TRIFOLIUM AMPHRANTHUM	Rust	Uromyces minor Schroet.
TRIFOLIUM CAROLIN- IANUM	Rust	Uromyces sp.
TRIPSACUM DACTY- LOIDES	Rust	Puccinia polysora Underw.
TROPAEOLUM MAJUS	Curly top	Virus
TROPAEOLUM MINUS	Curly top	Virus
TSUGA CANADENSIS	Blight	Pestalozzia funerea Desm.
ULMUS CRASSIFOLIA	Twig blight	Diplodia ulmi Dearness
	Twig blight	Septobasidium sp.

ULMUS PARVIFOLIA	Twig blight	Tubercularia sp. (apparently. Dr. Diehl says "This is a remarkable fungus and not at all typical!")
	Twig blight	Didymosphaeria sp. Sacidium ulmi-gallae Kell. & Sw.
VACCINIUM (BATODEN- DRON) ARBOREUM		Ophiodothella vaccinii Boyd
VERNONIA FASCICULATA	Rust	Coleosporium vernoniae B. & C.
VIGNA SINENSIS	Ashy stem blight	Macrophomina phaseoli (Maubl.) Ashby
	Chlorosis	Physiological
	Crinkle mosaic	Virus
	Stem blight	Sclerotium bataticola Taub.
VIOLA COLORATA	Curly top	Virus
	Scab	Sphaceloma violae Massey & Jenkins
VIOLA TRICOLOR	Curly top	Virus
VIOLA SP.	Leaf spot	Colletotrichum violae-rotundi- foliae (Sacc.) Davis
WASHINGTONIA FILIFERA	False smut	Graviola phoenicis (Moug.) Poit.
WISTERIA FRUTESCENS	Powdery mildew	Erysiphe cichoracearum D.C.
YUCCA	Leaf spot	Epicoccum asterinum Pat.
ZANTEDESCHIA AETHIO- PICA	Spotted wilt	Virus
ZANTEDESCHIA ALBO- MACULATA	Spotted wilt	Virus
ZANTEDESCHIA REH- MANNI	Spotted wilt	Virus
ZEA MAYS	Stalk rot	Bacterium dissolvens Rosen
	Wilt	Aplanobacter stewartii (E.F.S.) McCul.
	Black bundle	Cephalosporium acremonium Cda.
	Leaf spot	Bacterium sp.
	Stalk rot	Pythium butleri Subramanian
ZINNIA ELEGANS	Root knot	Heterodera marioni (Cornu) Goodey
ZINNIA SP.	Spotted wilt	Virus

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SUPPLEMENT 136

A SURVEY OF THE GENUS LYCOPERSICON FOR RESISTANCE
TO THE IMPORTANT TOMATO DISEASES OCCURRING IN
OHIO AND INDIANA

June 15, 1942

The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

A SURVEY OF THE GENUS LYCOPERSICON FOR RESISTANCE
TO THE IMPORTANT TOMATO DISEASES OCCURRING IN
OHIO AND INDIANA

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During the past several years, the Division of Plant Exploration and Introduction, Bureau of Plant Industry, United States Department of Agriculture, has been making a world-wide collection of the genus Lycopersicon, especially from South and Central America where the genus is thought to be indigenous, in order to obtain new sources of genetic material for improving the domestic tomato. Seed of these introductions has been multiplied and made available to workers in the United States Department of Agriculture and the State experiment stations.

Certain of these introductions have already been used as a source of disease resistance in the development of new varieties of tomatoes; however, they will be most useful only after they have been surveyed for desirable characters under varied conditions. The publication of such surveys should greatly reduce the amount of work and expense involved in tomato breeding programs using these collections.

At the Ohio and Indiana Agricultural Experiment Stations, large numbers of these introductions have been tested for disease reaction in an effort to locate sources of resistant germ plasm for use in tomato breeding programs. Tests have been made for resistance to practically all the important tomato diseases that occur in the North-Central region of the United States. These data are brought together in this paper.

Methods

The 448 tomato introductions tested were received during the period 1935 to 1940. Since the number of seeds received from the original sources was small, usually no tests were made until the seed could be field-multiplied. In saving seed, no attempt was made to select types, but the collection was sampled by saving fruit from each plant in a plot. Since the blossoms were not bagged, a slight amount of crossing may have taken place.

A classification of those plants used for seed multiplication was made on the basis of fruit and leaf characters, and in the tables of this publication, the introductions are grouped on the basis of these characters. Muller (7) divided the genus Lycopersicon into 6 species, and his classification has been followed. Muller also classified a large number of these introductions, and those identified by him as belonging in the group where placed are indicated in the tables by an asterisk.

The species L. esculentum contained a number of different types that were separated as shown in Table 5. In many instances, it was not possible by macroscopic examination to distinguish between certain of the small L. esculentum introductions and L. pimpinellifolium, consequently, a group was included in the L. esculentum types with the heading "probable crosses between L. esculentum and L. pimpinellifolium." It is likely that some of the introductions listed under this heading should be considered as L. pimpinellifolium or small L. esculentum types. The remainder were probably chance crosses between the 2 species.

Seeds of introductions to be tested for resistance to fusarium wilt, (Fusarium bulbigenum var. lycopersici Wr. & Reinking), were sown in a sand and peat moss mixture. Several isolates of the Fusarium were mixed to make up the inoculum. Plants about 2 weeks old were inoculated by dipping the roots into a spore and mycelial suspension, and were then transplanted into beds or flats. Soil temperatures in the glasshouse were maintained between 75 and 80° F.; and the air temperature as near 70° F. as possible. Disease readings usually were made 5 or 6 weeks after inoculation. Certain lots were transplanted into the field for further observation and the additional data secured combined with those obtained in the greenhouse. Three classes were used to record the data in Ohio: plants with no external symptoms and no discolored vascular tissue on cross section were considered healthy; plants with external symptoms or darkened vascular tissue were listed as diseased; plants dying before notes were taken were listed as dead. In the Indiana data, 2 classes were used: plants not showing external symptoms or discolored vascular tissue at the ground line were considered healthy; all others, diseased.

Leaf mold tests were made by spraying spore suspensions of Cladosporium fulvum Cke. onto potted plants with from 4 to 6 true leaves. The method was essentially that described by Alexander (1,3); Diseased leaves used as a source of inoculum for the "Globelle" strain were collected from northern Ohio, for the "Globe" strain from southern Ohio; in each case the strain was verified by cross-inoculations.

Resistance to septoria leaf blight, Septoria lycopersici Speg., and to alternaria leaf blight, Alternaria solani (Ell. & Mart.) Jones & Grout, was determined by field observations. In addition, certain resistant plants were tested further by artificial inoculations in the glasshouse. Ohio observations were dependent on natural infection. In Indiana, natural infection was supplemented with artificial inoculations in separate field plots. Four classes were used to record resistance to these diseases: Healthy, indicated by (0), showed no visible lesions and no defoliation from disease; Very resistant, (1), showed some small lesions but no defoliation; Moderately resistant, (2), intermediate between very resistant and susceptible and showed some defoliation; Susceptible, (3) appeared to offer little or no resistance. Certain introductions were not uniform for resistance or susceptibility; these are designated as heterogeneous (H). The relative resistance of these classes has been described by Wright and Lincoln (11).

Observations on resistance to common tobacco mosaic virus, Marmor tabaci var. vulgare Holmes, were made in Ohio from natural field infection. In Indiana, artificial inoculations were made on plants 3 weeks

after transplanting from the seed flat. No attempt was made to classify the severity of the disease, and only its presence or absence was recorded. Introductions appearing healthy and free from the virus were designated (O); those susceptible to this virus, (S); introductions not uniform in their reaction were indicated as heterogeneous (H). Plants from certain introductions appeared healthy and were tested for the presence of the virus by the local lesion method on Datura stramonium or Nicotiana glutinosa as described by Price (9). Results of these tests are shown in Table 2.

Tests for resistance to bacterial canker, Phytophthora michiganensis (E.F.S.) Bergey et al., were made during the winter on plants that had been potted 7 to 8 weeks, inoculated by injection of a few drops of an 18 to 24-hour-old nutrient broth culture into the stems with a hypodermic needle. Readings were made 5 weeks afterward. The plants were divided into 3 classes, (1) healthy, (2) living plants showing internal discoloration usually accompanied by wilting and therefore considered diseased, and (3) dead plants.^{1/}

Resistance of the foliage to bacterial spot, Phytophthora vesicatoria (Doidge) Bergey et al., was tested in the greenhouse about 4 weeks after transplanting into flats. Artificial inoculations were made under favorable temperature and humidity conditions. Three ratings were made on the basis of the appearance of the lesions: resistant, indicated by (1), with very small lesions; intermediate, (2), with larger lesions, usually averaging about 1 mm. in diameter and often corky in appearance; and susceptible, (3) with much larger lesions and apparently possessing no resistance.

Tests for bacterial wilt resistance, Phytophthora solanacearum (E.F.S.) Bergey et al., were made on 7 plants from each introduction grown in the glasshouse in flats during the summer of 1940. Inoculations were made by chopping up diseased plants obtained from the field, flooding the flats with this suspension, and then cutting the roots between alternate rows of plants. This inoculation was repeated twice with diseased plants removed from the flat used for inoculum. At the end of the test period live plants were pulled, and the stems split open at the ground line. If the stem was discolored, the plant was considered diseased. Cuttings from healthy plants developed into good plants and matured fruit. Each plant saved was given a 10-plant progeny test in the summer of 1941. In cases where all plants of a given progeny were susceptible, the original plant was considered as an escape.

Results and Discussion

The observations on the resistance of the introductions tested to the various pathogens are given in Tables 1 to 5. The 5 species of Lycopersicon tested are grouped in separate tables.

^{1/} The authors are indebted to R. C. Thomas, Associate, Department of Botany and Plant Pathology, Ohio Agricultural Experiment Station, for making these inoculations and taking the records.

Of the species tested, L. peruvianum apparently offered the highest type of resistance to the diseases studied. It appeared to be particularly valuable as a source of resistance to tobacco mosaic and to leaf mold, being almost uniformly resistant to both. In addition, certain introductions of L. peruvianum were resistant to fusarium wilt, septoria and alternaria leaf blights, and bacterial spot. On the other hand, this species seemed to have little resistance to bacterial canker or bacterial wilt. L. peruvianum is considered rather difficult to hybridize with red-fruited types, but the cross L. pimpinellifolium X L. peruvianum (P.I. 126431) has been made at the Indiana Station, and fertile F₂ seed has been obtained there. Holmes (5) and Virgin (10) obtained fertile crosses between L. peruvianum and red-fruited forms of the domestic species. A cross with L. peruvianum var. humifusum (P. I. 127829) has been attempted several hundred times at both the Ohio and Indiana Stations but as yet has not been successful.

L. hirsutum was tested adequately only for resistance to the defoliation diseases and to tobacco mosaic. The species showed high resistance to these diseases, approaching immunity in many cases. With the exception of the variety glabratum, this species flowered but rarely fruited in the field in Ohio or Indiana. In view of the apparent association between fruitfulness and severity of defoliation in commercial varieties, it might be expected that this resistance was partially due to lateness and non-fruitfulness. However, artificial inoculations under conditions of humidity and temperature favorable for disease development indicated that this was not the cause. It is encouraging to note that certain other stations are using L. hirsutum as a source of resistance to leaf defoliation diseases. Locke (6) has published recently on the resistance of segregates of L. hirsutum X L. esculentum crosses to septoria and alternaria leaf blights. An attempt is being made at the Ohio and Indiana Stations to transfer by hybridization the resistance of certain L. hirsutum introductions to commercial types of tomato. Porte et al. (8) have also reported hybridization for this purpose. The authors experienced little difficulty in obtaining fertile hybrids of this species with L. esculentum.

L. glandulosum has not been tested adequately for disease reaction, since it fruits poorly or not at all. For this reason, introductions of the species have not been available for routine testing work. From limited observations, it did not appear to possess any resistance to the diseases studied.

L. pimpinellifolium contained resistance to fusarium wilt and leaf mold. Certain introductions also appeared to have some resistance to septoria, as indicated by small lesion size and delayed and reduced sporulation. Several of the introductions, although susceptible to the tobacco mosaic virus, showed very mild symptoms of the disease. L. pimpinellifolium is red-fruited, readily hybridizes with varieties of the domestic species, and has been used widely as a source of disease resistance. Since Bohn and Tucker (4) reported P.I. 79532 to be "immune" from fusarium wilt, it has been used widely as the source of wilt-resistance in several breeding programs. The Ohio data indicated that the resistance of this introduction has not been maintained to the Ohio strains of Fusarium. A comparison of the Ohio and Indiana data shows

that although in general the resistance of an introduction is the same in the 2 areas, an outstanding exception to this generalization occurred in P.I. 79532. This species has been used by Alexander (1) as a source of leaf-mold-resistance in the glasshouse tomato. Some of the introductions appear to be homozygous for resistance to both the known strains of this organism.

L. esculentum, with certain exceptions, namely P.I. 126914, 126915, 126950, 128621, 129027, 129029, 129165, and 126156, contained little of value to a disease-resistance breeding program. The exceptions were wilt-resistant and may be valuable for this character. Certain other introductions may have a slight degree of resistance to septoria leaf blight as evidenced by somewhat less defoliation. However, Alexander (2) tested 130 commercial varieties of this species under controlled conditions without finding evidence of resistance.

Tests were made to determine resistance to ripe fruit rot caused by Colletotrichum phoenoides (Sacc.) Chester. Wide differences were indicated by the incidence of fruit rot in the field. L. esculentum, P.I. 129123 and 129125, are known to be extremely susceptible. At the Indiana Station during the summer of 1941, more than 50% of the fruits of these introductions had one or more lesions, but there was less than 5% infection on fruit of most other introductions and of commercial varieties. These 2 introductions may have value as susceptible checks in a breeding program. Attempts also were made to determine resistance by artificial inoculation. Because of the fleshy, perishable nature of a tomato fruit, this proved a difficult task. Nevertheless, there were marked differences in the rate at which fruits broke down and in the rate of increase of lesion size. Fruit size is a variable which has not been satisfactorily analyzed in its relation to resistance. The species L. esculentum and L. pimpinellifolium P. I. 117897, 123538, 124165, 126417, 126934, 126939, 128227, 128233, 128237, 128446, 128623, 129054, 129065, 129119, and 129932 appeared to possess resistance, as indicated by rapidity of fruit breakdown and rate of increase in lesion size. Much more work needs to be done to locate resistance to this disease, but it is believed that marked differences in resistance are present in the collection.

Fruit cracking is important in influencing the amount of loss by fruit rot, as well as in decreasing the commercial value of the fruit. It was observed that some introductions typically cracked radially, while others cracked concentrically. The species L. esculentum P. I. 118327, 125831, 126412, 126452, and 126815 appeared to be extremely susceptible and to have value as susceptible check material. During the summer of 1941 L. esculentum and L. pimpinellifolium P.I. 91458, 92864, 92865, 93302, 118407, 118611, 120267, 124133, 126929, 126946, 127795, 129108, 129109, 129110, 129119, 129120, and 129831 produced practically no cracked fruit even though allowed to hang to extreme maturity. Certain of these introductions were under observation for more than one season and may be considered to have some degree of resistance to cracking.

An observation regarding possible resistance of L. hirsutum var. glabratum P.I. 134417 to red spider is of interest and probably worth recording. This introduction showed no injury during a red spider infestation that killed L. glandulosum P.I. 126435, 126439, and 126949, and essentially defoliated L. peruvianum P.I. 126926, 126928, 126929, 126945,

and 127829, and several introductions each of L. pimpinellifolium and L. esculentum. Some red spiders were observed on the leaves of P.I. 134417, but, since the foliage of plants of this introduction was intermingled with the foliage of plants of severely infested introductions, it is not known whether these individuals had become established or were migrants. The other L. hirsutum introductions, 126445, 126446, and 126936, also appeared to possess some resistance.

The survey reported here shows that resistance to practically all the important tomato diseases occurs in the genus Lycopersicon. It is reasonable to expect that in time, such resistance can be transferred to commercial tomato varieties, since representatives of most of the wild species possessing resistance have been crossed with varieties of the domestic species.

Since most crosses between the green-fruited species, L. peruvianum, L. hirsutum, and L. glandulosum, and the red-fruited species, L. esculentum and L. pimpinellifolium, are obtained with more or less difficulty, certain techniques may prove of value in transferring the genes for disease resistance to commercial types. Crosses have been obtained between red-fruited species and both L. hirsutum and L. peruvianum. Additional crosses with introductions of the green-fruited species might be obtained more easily if segregates from the crosses already obtained were used instead of some of the standard varieties of L. esculentum. Segregates from this "bridging-cross" might then be expected to cross more readily with commercial varieties. Also, consideration might be given to the feasibility of crossing 2 desirable introductions of a given species, obtaining a segregate that combined the desired features of both parents, then putting all the effort necessary into obtaining the cross of this segregate with commercial types.

Because of host and parasite variation, a given introduction might show a different reaction to a specific organism from that reported in this survey in some cases. Some introductions used in this study were observed to be heterogeneous for disease reaction; consequently, it is possible that with subsequent seed multiplication, different genotypes may appear. However, since the tomato is largely self-pollinated, this source of variation should be small. The pathogens also may vary in different localities. An example of pathogenic variation is indicated by the differences in the results obtained from the Ohio and Indiana fusarium-wilt tests. It is to be expected that pathogenic variation will be found in other organisms as well, since the discovery of resistant plants furnishes a differential host on which variants may develop and be selected.

Summary

1. Four hundred forty-eight tomato introductions of the Division of Plant Exploration and Introduction, Bureau of Plant Industry, United States Department of Agriculture, have been tested for their reaction to most of the important tomato diseases occurring in the North-Central region of the United States, and have been classified according to their resistance or susceptibility.

2. The introductions included 5 species of the genus Lycopersicon.
3. In some species high resistance was found to fusarium wilt, leaf mold, septoria and alternaria leaf blights, common tobacco mosaic, and bacterial spot. Resistance to ripe fruit rot caused by Colletotrichum was indicated. No marked resistance was found to bacterial canker and bacterial wilt.
4. Wide differences in the severity of cracking of red-fruited introductions were observed.
5. What appeared to be resistance to red spider was observed in one species.

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Table 1. Disease resistance of introductions of the species
Lycopersicon peruvianum

P.I. Number	FUSARIUM WILT					LEAF MOLD					
	Ohio		Indiana		Globe Strain	Gloabelle Strain		Gloabelle Strain		Gloabelle Strain	Gloabelle Strain
	Healthy	Dis.	Dead	Test	Healthy	Res.	Fleck	Susc.	Res.	Fleck	Susc.
	No.	No.	No.	No.	Pct.	No.	No.	No.	No.	No.	No.
126431*	1	0	8						10	0	0
126926*	1	0	13			25	0	0	34	0	0 ^{b/}
126928*	14	2	0						7	0	3
126929*	0	2	14	10	80				0	0	10
126930*	0	0	3	8	100				10	0	0
126944*	4	0	10			24	1	0	31	6	0 ^{b/}
126945*	1	0	15			20	5	0	26	11	0 ^{b/}
126946*	1	0	11	7	71	25	0	0	31	0	0 ^{b/}
128656*	40	1	1 ^{b/}						5	0	0

Variety dentatum

126935*									4	1	0
127830*	0	2	1	8	50	14	0	0	21	0	0
127831*	2	0	1	12	0				2	7	9 ^{b/}
127832*	15	1	0						8	0	0
128645*	19	1	3 ^{b/}			25	0	0	33	0	0 ^{b/}
128646*	41	4	3 ^{b/}			24	0	0	35	0	0 ^{b/}
128647*	54	1	1 ^{b/}			23	0	1	29	0	0 ^{b/}
128648*	33	17	5 ^{b/}			24	0	0	23	0	0 ^{b/}
128652*	55	0	0 ^{b/}						0	0	10
128654	43	13	0 ^{b/}			25	0	0	34	0	0 ^{b/}
128655*	48	4	3 ^{b/}						9	1	0
128660*											
128661*											
128663*											
129021 ^{a/}											

Variety humifusum

127829*	18	20	1 ^{b/}	17	88 ^{b/}	25	0	0	34	0	0 ^{b/}
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* Introduction classified by Muller (7).

^{a/}Listed by Muller as L. esculentum var. cerasiforme. Obviously seed has been mixed.

^{b/}Indicates summation of more than one test.

Table 1. Disease resistance of introductions of the species
Lycopersicon peruvianum (Cont.)

	:SEPTORIA		:ALTERNARIA		:TORABCC		:BACTERIAL CANKER		:BAC-		:BACTERIAL	
P.I.	:LEAF SPOT		:LEAF SPOT		: MOSAIC				:TERIAL		: WILT	
Number	:Ohio:	Ind.:	:Ohio:	Ind.:	:Ohio:	Ind.:	:Healthy:	Dis.:	:Dead:	SPOT	:Healthy	
	:Rank ^c		:Rank ^c		:Rank ^c		No.		No.	No.	:Rank ^c	Pct.
126431*	:	3	:	3	:	0	0	5	0	1	:	0
126926*	2	:	3	1	H	0	0	1	0	3	2	:
126928*	H	:	2	:	2	S	S	0	4	1	:	0
126929*	:	2	:	H	:	0	:	:	:	:	1	:
126930*	1	:	S	:	H	0	H	0	3	0	1	0
126944*	2	:	3	:	H	S	S	0	0	5	3	0
126945*	2	:	H	:	3	H	0	0	3	2	3	:
126946*	1	:	H	:	H	0	0	0	5	0	3	:
128656*	2	:	:	2	:	S	:	0	2	1	:	:

Variety dentatum

126935*	3	:	:	:	:	0	:	0	5	0	:	:
127830*	0	:	3	1	2	0	0	0	4	2	:	:
127831*	2	:	3	1	3	S	S	0	1	4	:	14
127832*	2	:	3	1	3	S	S	0	5	5 ^{b/}	3	:
128645*	2	:	:	2	:	S	:	0	3	2	:	:
128646*	2	:	:	1	:	S?	:	0	1	1	:	:
128647*	1	:	:	1	:	S?	:	:	:	:	:	:
128648*	1	:	:	1	:	S	:	0	4	1	:	:
128652*	1	:	:	1	:	S?	:	0	1	2	:	:
128654	0	:	:	1	:	H	:	0	1	4	:	:
128655*	2	:	:	:	:	S	:	0	0	4	:	:
128660*	2	:	:	:	:	S	:	:	:	:	:	:
128661*	1	:	:	1	:	S	:	:	:	:	:	:
128663*	2	:	:	:	:	S	:	:	:	:	:	:
129021 ^{a/}	1	:	:	1	:	S	:	:	:	:	:	:

Variety humifusum

127829*	0	:	1	0	1	S	S	0	2	0	3	:
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^{c/} Ranked for resistance. 0 = healthy; 3 = susceptibility; H = heterogenous.

^{d/} Ranked for resistance. 0 = healthy; S = susceptibility; H = heterogenous.

Table 2. Disease resistance of introductions of the species
Lycopersicon hirsutum

P.I. Number	FUSARIUM WILT					LEAF MOLD					
	Ohio		Indiana			Globe Strain		Globelle Strain			
	Healthy:	Dis.:	Dead:	Tested:	Healthy:	Res.:	Fleck:	Susc.:	Res.:	Fleck:	Susc.
	No.	No.	No.	No.	Pct.	No.	No.	No.	No.	No.	No.
126445*:	:	:	:	:	:	:	:	:	:	:	:
126446*:	:	:	:	20	100	:	:	:	:	:	:
126447*:	:	:	:	5	100	:	:	:	:	:	:
126449*:	:	:	:	2	100	:	:	:	:	:	:
126936*:	2	4	10	:	:	:	:	:	:	:	:
127826 :	:	:	:	:	:	:	:	:	:	:	:
127827*:	:	:	:	:	:	:	:	:	:	:	:

Variety glabratum

129157*:	:	:	:	:	:	:	:	:	:	:	:
134417 :	0	9	5	:	:	0	0	25	0	0	35 ^{b/}
134418 :	:	:	:	:	:	:	:	:	:	:	:

Table 3. Disease resistance of introductions of the species
Lycopersicon glandulosum

P.I. Number	FUSARIUM WILT					LEAF MOLD					
	Ohio		Indiana			Globe Strain		Globelle Strain			
	Healthy:	Dis.:	Dead:	Tested:	Healthy:	Res.:	Fleck:	Susc.:	Res.:	Fleck:	Susc.
	No.	No.	No.	No.	Pct.	No.	No.	No.	No.	No.	No.
126434*:	:	:	:	:	:	:	:	:	:	:	:
126435*:	:	:	:	:	:	:	:	:	:	:	:
126438*:	:	:	:	:	:	:	:	:	:	:	:
126439*:	:	:	:	:	:	:	:	:	:	:	:
126440*:	:	:	:	:	:	:	:	:	:	:	:
126441*:	:	:	:	:	:	:	:	:	:	:	:
126443*:	:	:	:	:	:	:	:	:	:	:	:
126448*:	:	:	:	:	:	:	:	:	:	:	:
126450*:	:	:	:	:	:	:	:	:	:	:	:
126949*:	:	:	:	:	:	:	:	:	:	:	:

* Introductions classified by Muller (7).

a/ Tested for presence of virus by local lesions method, Price (9).

b/ Indicates summation of more than 1 test.

Table 2. Disease resistance of introductions of the species
Lycopersicon hirsutum (Cont.)

	:SEPTORIA		:ALTERNARIA		:TOBACCO		:BACTERIAL CANKER		:BAC-		:BACTERIAL	
P.I.	:LEAF SPOT		:LEAF SPOT		: MOSAIC				:TERIAL		: WILT	
Number	:Chio	:Ind.	:Ohio	:Ind.	:Chio	:Ind.	:Healthy	:Dis.	:Dead	:SPOT	:Healthy	
	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^d	:Rank ^d	No.	No.	No.	:Rank ^c	Pct.	
126445*	1	0	:	:	2	0	Ca/	:	:	:	:	:
126446*	1	1	1	2	0	0a/	:	:	:	1	:	:
126447*	1	1	1	2	0	0	:	:	:	:	:	:
126449*	1	1	1	2	0	0	:	:	:	:	:	:
126936*	1	1	1	2	0	0	:	:	:	:	:	:
127826	0	:	1	:	0	:	:	:	:	:	:	:
127827*	0	:	:	:	C	:	:	:	:	:	:	:

Variety glabratum

129157*	1	:	C	:	S	:	:	:	:	:	:	:
134417	1	:	0	:	S	S	0	0	4	2	:	:
134418	1	:	0	:	S	S	:	:	:	:	:	:

Table 3. Disease resistance of foreign introductions of the
species Lycopersicon glandulosum (Cont.)

	:SEPTORIA		:ALTERNARIA		:TOBACCO		:BACTERIAL CANKER		:BAC-		:BACTERIAL	
P.I.	:LEAF SPOT		:LEAF SPOT		: MOSAIC				:TERIAL		: WILT	
Number	:Chio	:Ind.	:Ohio	:Ind.	:Ohio	:Ind.	:Healthy	:Dis.	:Dead	:SPOT	:Healthy	
	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	No.	No.	No.	:Rank ^c	Pct.	
126434*	:	2	:	2	:	:	:	:	:	:	:	:
126435*	:	2	:	H	:	:	:	:	:	:	:	:
126438*	:	3	:	3	:	:	:	:	:	:	:	:
126439*	:	3	:	1	:	:	:	:	:	:	:	:
126440*	:	2	:	3	:	:	:	:	:	:	:	:
126441*	:	H	:	2	:	:	:	:	:	:	:	:
126443*	1	2	1	H	S	:	:	:	:	:	:	:
126448*	1	1	1	2	S	:	:	:	:	:	:	:
126450*	:	3	:	H	:	:	:	:	:	:	:	:
126949*	:	3	:	2	:	C	:	:	:	2	:	:

c/ Ranked for resistance. C = healthy; 3 = susceptibility; H = heterogeneous.

d/ Ranked for resistance. O = healthy; S = susceptibility; H = heterogeneous.

Table 4. Disease resistance of introductions of
the species Lycopersicon pimpinellifolium

P.I. Number	FUSARIUM WILT					LEAF MOLD					
	Ohio		Indiana			Globe Strain			Globelle Strain		
	Healthy	Dis.	Dead	Tested	Healthy	Res.	Fleck	Susc.	Res.	Fleck	Susc.
	No.	No.	No.	No.	Pct.	No.	No.	No.	No.	No.	No.
79532	25	15	0 _b /	48	100 _b /	25	0	0	32	3	0 _b /
108245	0	0	13						0	0	10
112215	0	0	15			25	0	0	34	0	0 _b /
118403	0	1	15						0	0	10
118409	0	0	15						0	0	9
118784	2	2	12								
126433*	0	0	14			23	1	0	0	19	6
126436*	2	5	9	3	33				5	5	0
126437*	0	1	13	8	50				0	0	10
126923*	25	21	9 _b /	38	87 _b /				2	4	4
126924*	0	1	13						0	0	10
126925*	1	3	12						7	0	3
126927*	0	1	14						0	9	0
126932*	2	5	5						0	1	5
126934*	6	0	10						5	0	2
126937*	14	7	9 _b /						0	0	7
126938*	0	4	12			25	0	0	7	25	0 _b /
126939*	5	6	5			25	0	0	24	2	8 _b /
126941*	8	3	4						0	0	7
126947*	20	5	6 _b /						0	9	0
126948*	13	12	2 _b /						3	3	0
126949 ^a	0	1	15						0	0	10
126951*	22	6	1 _b /						0	5	5
126952*	20	5	6 _b /						2	0	7
126953*	3	4	3						3	0	7
126954*	5	1	4						8	0	4
127805*	7	3	6	18	95 _b /				1	0	9
127806*	40	0	0 _b /	8	100				4	1	5
127807*	38	2	0 _b /	8	100				1	0	9
127833*	0	1	1	49	95 _b /				0	0	5
128194	0	3	10						0	0	10
129105	0	0	10								
129108	0	4	10								
129143	0	0	15						0	2	8
133542	2	0	10						0	0	10

* Introductions identified by Muller (7).

^a/Identified by Muller as L. glandulosum. Obviously a mixture._b/Summation of more than 1 test.

Table 4. Disease resistance of introductions of the species
Lycopersicon pimpinellifolium (Cont.)

P.I.	:SEPTORIA		:ALTERNARIA		:TOBACCO		:BACTERIAL CANKER			:BAC-		:BACTERIAL	
	:LEAF SPOT		:LEAF SPOT		:MOSAIC					:TERIAL		:WILT	
Number	:Chio	:Ind.	:Ohio	:Ind.	:Ohio	:Ind.	:Healthy	:Dis.	:Dead	:SPOT		:Healthy	
	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^d	No.	No.	No.	:Rank ^c		Pct.	
79532	:	3	:	3	:	S	2	2	0	2	:		
108245	:	:	:	:	:	:	2	3	0	:	:		
112215	:	:	:	:	:	:	1	4	0	:	:		
118403	:	:	:	:	:	:	0	3	2	:	:		
118409	:	:	:	:	:	:	0	5	0	:	:		
118784	:	:	:	:	:	:	:	:	:	:	:		
126433*	:	2	:	2	:	S	2	2	0	3	:		
126436*	:	3	:	3	:	S	0	4	0	3	:		
126437*	:	3	:	3	:	S	0	4	1	3	:		
126923*	:	2	:	3	:	S	2	2	0	1	:		
126924*	:	2	:	3	:	S	1	4	0	2	:		
126925*	:	2	:	3	:	S	3	2	0	:	:	0	
126927*	:	3	:	3	:	S	1	3	0	3	:		
126932*	:	3	:	:	:	S	0	3	2	2	:	0	
126934*	:	3	:	3	:	S	1	2	2	2	:	0	
126937*	:	3	:	3	:	S	0	3	2	3	:	0	
126938*	:	3	:	3	:	S	0	3	1	1	:	20	
126939*	:	3	:	3	:	S	0	5	0	1	:		
126941*	:	3	:	3	:	S	0	5	0	3	:	0	
126947*	:	2	:	3	:	S	2	3	0	3	:	0	
126948*	:	2	:	3	:	S	0	5	0	1	:	0	
126949	:	:	:	:	:	:	3	1	1	:	:		
126951*	:	3	:	3	:	S	0	4	0	2	:	0	
126952*	:	3	:	3	:	S	0	3	2	1	:	14	
126953*	:	3	:	3	:	S	0	5	0	3	:	0	
126954*	:	3	:	3	:	S	0	4	0	3	:	14	
127805*	1	2	:	3	:	S	S	0	0	3	:	14	
127806*	1	2	:	3	:	S	S	1	4	0	:	0	
127807*	1	2	:	3	:	S	S	1	3	1	2	0	
127833*	2	3	:	3	:	S	S	1	3	1	3	0	
128194	2	:	:	:	:	S	:	:	:	:	:		
129105	2	:	:	:	:	S	:	:	:	:	:		
129108	2	:	:	:	:	S	:	:	:	:	:		
129143	2	:	:	:	:	O	1	3	0	:	:		
133542	2	2	:	:	:	S	S	0	4	1	3	:	

c/ Ranked for resistance. 0 = healthy; 3 = susceptibility; H = heterogeneous.
d/ Ranked for resistance. 0 = healthy; S = susceptibility; H = heterogeneous.

Table 5. Disease resistance of introductions of the species
Lycopersicon esculentum grouped according to
 horticultural types

	FUSARIUM WILT					LEAF MOLD					
P.I.	Ohio		Indiana			Globe Strain		Globelle Strain			
Number	Healthy	Dis.	Dead	Tested	Healthy	Res.	Fleck	Susc.	Res.	Fleck	Susc.
	No.	No.	No.	No.	Pct.	No.	No.	No.	No.	No.	No.

Cerasiforme type

91458	:	:	:	:	:	:	:	:	:	:	:
92855	:	:	:	125	:	42 ^b / ₁	:	:	:	:	:
95588	:	:	:	:	:	:	:	:	:	:	:
126417*	1	2	11	16	:	24 ^b / ₁	:	:	:	:	:
126418*	0	4	9	:	:	:	:	:	:	:	:
126419*	0	6	10	14	:	38 ^b / ₁	:	:	:	:	:
126425*	1	4	9	:	:	:	:	:	0	0	10
126426*	0	0	15	:	:	:	:	:	:	:	:
126427*	0	0	14	8	:	0	:	:	:	:	:
126428*	0	1	9	8	:	0	:	:	:	:	:
126429*	0	0	5	8	:	0	:	:	:	:	:
126942*	1	6	7	:	:	:	:	:	0	0	5
126950*	34	4	1 ^b / ₁	:	:	:	:	:	1	0	9
127814*	0	4	10	:	:	:	:	:	:	:	:
128596*	1	8	4	:	:	:	:	:	:	:	:
129027*	13	1	0	:	:	:	:	:	0	9	0
129111	0	1	16	:	:	:	:	:	:	:	:
129112*	1	4	7	:	:	:	:	:	:	:	:
129146 ^a / ₁	11	9	5 ^b / ₁	:	:	:	:	:	:	:	:
129156*	12	3	0	:	:	:	:	:	7	0	0

Pyriforme type

92861	:	:	:	6	:	83	:	:	:	:	:
92864	:	:	:	21	:	0	:	:	:	:	:
92865	:	:	:	:	:	:	:	:	:	:	:
92866	:	:	:	5	:	40	:	:	:	:	:
93302	:	:	:	21	:	24	:	:	:	:	:
95558	:	:	:	:	:	:	:	:	:	:	:
108246	0	3	13	:	:	:	:	:	:	:	:
126420*	0	4	10	12	:	17 ^b / ₁	:	:	:	:	:
126452*	0	0	14	:	:	:	:	:	:	:	:

* Introductions identified by Muller (7).

a/Identified by Muller as L. peruvianum. Obviously a mixture.

b/Indicates summation of more than one test.

Table 5. Disease resistance of foreign introductions of the species Lycopersicon esculentum grouped according to horticultural types (Cont.)

	:SEPTORIA		:ALTERNARIA		:TOBACCO		:BACTERIAL CANKER		:BAC-		:BACTERIAL	
P.I.	:LEAF SPOT		:LEAF SPOT		: MOSAIC		:		:TERIAL		: VILT	
Number	:Ohio	:Ind.	:Ohio	:Ind.	:Ohio	:Ind.	:Healthy	:Dis.	:Dead	:SPOT	: Healthy	
	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:No.	:No.	:No.	:Rank ^c	: Pot.	
	:	:	:	:	:	:	:	:	:	:	:	

Cerasiforme type

91458	:	:	3	:	:	3	:	:	:	:	3	:	0
92855	:	:	3	:	:	3	:	:	:	:	3	:	0
95588	:	:	3	:	:	3	:	:	:	:	3	:	14
126417*	:	:	3	:	:	3	:	:	:	:	:	:	0
126418*	:	:	:	:	:	:	:	:	:	:	:	:	:
126419*	:	3	:	:	3	:	:	S	1	4	0	2	:
126425*	:	:	:	:	:	:	:	:	:	:	:	:	:
126426*	:	:	:	:	:	:	:	:	:	:	:	:	:
126427*	:	3	:	:	3	:	:	S	:	:	:	2	:
126428*	:	3	:	:	3	:	:	S	:	:	:	2	:
126429*	:	3	:	:	3	:	:	:	:	:	:	2	:
126942*	:	3	:	:	3	:	:	S	0	5	0	3	0
126950*	:	3	:	:	3	:	:	S	0	4	1	1	14
127814*	2	:	:	:	:	S	:	:	:	:	:	:	:
128596*	3	:	:	:	:	S	:	:	:	:	:	:	:
129027*	3	:	:	:	:	S	:	:	0	2	3	:	:
129111	3	:	:	:	:	S	:	:	:	:	:	:	:
129112*	3	:	:	:	:	S	:	:	:	:	:	:	:
129146 ^a	3	:	:	:	:	S	:	:	:	:	:	:	:
129156*	2	:	:	:	:	S	:	:	:	:	:	:	:

Pyriforme type

92861	:	:	3	:	:	3	:	:	:	:	3	:	:
92864	:	:	3	:	:	3	:	:	:	:	3	:	:
92865	:	:	3	:	:	3	:	:	:	:	3	:	:
92866	:	:	3	:	:	3	:	:	:	:	3	:	0
93302	:	:	3	:	:	3	:	:	:	:	3	:	:
95558	:	:	3	:	:	3	:	:	:	:	3	:	0
108246	:	:	:	:	:	:	:	:	:	:	:	:	:
126420*	:	3	:	:	3	:	:	S	:	:	:	3	0
126452*	:	3	:	:	3	:	:	S	:	:	:	:	0

c/ Ranked for resistance. 0 = healthy; 3 = susceptibility; H = heterogeneous.

d/ Ranked for resistance. 0 = healthy; S = susceptibility; H = heterogeneous.

Table 5 (Cont.)

	FUSARIUM WILT					LEAF MOLD					
P.I.	Ohio		Indiana			Globe Strain		Globelle Strain			
Number	Healthy	Dis.	Dead	Tested	Healthy	Res.	Fleck	Susc.	Res.	Fleck	Susc.
	No.	No.	No.	No.	Pct.	No.	No.	No.	No.	No.	No.

San Marzano type

117564 :	0	:	1	:	14	:	:	:	:	:	:	:
118324 :	0	:	0	:	15	:	:	:	:	:	:	:
124581 :	0	:	2	:	12	:	:	:	:	:	:	:
127810 :	0	:	2	:	14	:	:	:	:	:	:	:
128635 :	0	:	1	:	15	:	:	:	:	:	:	:
128636 :	0	:	4	:	12	:	:	:	:	:	:	:
128637 :	0	:	2	:	14	:	:	:	:	0	0	10
129044 :	0	:	0	:	14	:	:	:	:	:	:	:
129051 :	0	:	1	:	14	:	:	:	:	:	:	:
131880 :	0	:	0	:	16	:	:	:	:	:	:	:
131881 :	0	:	1	:	31 ^{b/}	5	20	:	:	0	0	10

Small-sized smooth red type

92356 :	:	:	:	:	:	:	:	:	:	:	:
100697 :	:	:	:	:	:	:	:	:	:	:	:
102707 :	:	:	:	:	:	:	:	:	:	:	:
102719 :	:	:	:	19	16	:	:	:	:	:	:
106997 :	0	:	0	:	16	:	:	:	:	:	:
116047 :	0	:	0	:	13	:	:	:	:	:	:
117566 :	0	:	3	:	12	:	:	:	:	:	:
117567 :	1	:	1	:	13	:	:	:	:	:	:
117897 :	3	:	3	:	8	:	:	:	:	:	:
117898 :	3	:	1	:	11	:	:	:	:	:	:
117399 :	0	:	2	:	13	:	:	:	:	:	:
118407 :	0	:	0	:	15	:	:	:	:	:	:
118611 :	0	:	1	:	14	:	:	:	:	:	:
118778 :	1	:	2	:	12	:	:	:	:	:	:
118782 :	0	:	0	:	15	:	:	:	:	:	:
118785 :	0	:	2	:	13	:	:	:	:	:	:
118790 :	0	:	0	:	15	:	:	:	:	:	:
120275 :	0	:	4	:	26	:	:	:	:	:	:
121438 :	0	:	3	:	12	:	:	:	:	:	:
123436 :	0	:	1	:	13	:	:	:	:	:	:
123538 :	1	:	2	:	11	:	:	:	:	:	:
124133 :	1	:	1	:	12	:	:	:	:	:	:
125830 :	0	:	4	:	10	28	7 ^{b/}	:	:	:	:
126409* :	1	:	3	:	10	32	22 ^{b/}	:	:	:	:
126410* :	0	:	2	:	12	25	8 ^{b/}	:	:	:	:
126411* :	0	:	2	:	12	9	22	:	:	:	:
126423* :	0	:	2	:	12	8	12	:	:	:	:

* Introductions identified by Muller (7).

^{b/} Summation of more than one test.

Table 5. (Cont.)

	:SEPTORIA	:ALTERNARIA	:TOBACCO	:BACTERIAL	:BAC-	:BACTERIAL
P.I.	:LEAF SPOT	:LEAF SPOT	:MCSAIC	:	:TERIAL	:WILT
Number	:Ohio-:Ind.:Ohio:Ind.:Ohio:Ind.:Healthy:Dis.:Dead:SPOT	:Healthy				
	:Rank ^c :Rank ^c :Rank ^c :Rank ^c :Rank ^d :Rank ^d	No.	No.	No.	:Rank ^c	Pct.

San Marzano type

117564	:	:	:	:	:	:	:	:	:	:
118324	:	:	:	:	:	:	:	:	:	:
124581	:	:	:	:	:	:	:	:	:	:
127810	:	3	:	:	:	S	:	:	:	:
128635	:	3	:	:	:	S	:	:	:	:
128636	:	3	:	:	:	S	:	:	:	:
128637	:	3	:	:	:	S	:	0	.5	0
129044	:	3	:	:	:	S	:	:	:	:
129051	:	3	:	:	:	S	:	:	:	:
131880	:	3	:	:	:	S	S	:	:	3
131881	:	3	:	:	:	S	S	0	4	0

Small-sized smooth red type

92356	:	:	3	:	3	:	S	:	:	:	3	:	0
100697	:	:	3	:	3	:	S	:	:	:	3	:	
102707	:	:	3	:	3	:	S	:	:	:	3	:	
102719	:	:	3	:	3	:	S	:	:	:		:	0
106997	:	:	:	:	:	:	:	:	:	:	:	:	
116047	:	:	:	:	:	:	:	:	:	:	:	:	
117566	:	:	:	:	:	:	:	:	:	:	:	:	
117567	:	:	:	:	:	:	:	:	:	:	:	:	
117897	:	:	:	:	:	:	:	:	:	:	:	:	
117898	:	:	:	:	:	:	:	:	:	:	:	:	
117899	:	:	:	:	:	:	:	:	:	:	:	:	
118407	:	:	:	:	:	:	:	:	:	:	:	:	
118611	:	:	:	:	:	:	:	:	:	:	:	:	
118778	:	:	:	:	:	:	:	:	:	:	:	:	
118782	:	:	:	:	:	:	:	:	:	:	:	:	
118735	:	:	:	:	:	:	:	:	:	:	:	:	
118790	:	:	:	:	:	:	:	:	:	:	:	:	
120275	:	:	:	:	:	:	:	:	:	:	:	:	
121438	:	:	:	:	:	:	:	:	:	:	:	:	
123436	:	:	:	:	:	:	:	:	:	:	:	:	
123538	:	:	:	:	:	:	:	:	:	:	:	:	
124133	:	:	:	:	:	:	:	:	:	:	:	:	
125830	:	:	3	:	3	:	S	:	:	:	3	:	28
126409*	3	:	3	:	3	:	S	S	:	:	3	:	
126410*	3	:	3	:	3	:	S	S	:	:	3	:	0
126411*	3	:	3	:	3	:	S	S	:	:	3	:	0
126423*	:	:	3	:	3	:	S	:	:	:	3	:	0

c/ Ranked for resistance. 0 = healthy; 3 = susceptibility; H = heterogeneous

d/ Ranked for resistance. 0 = healthy; S = susceptibility; H = heterogeneous

Table 5 (Cont.)

P.I.	FUSARIUM WILT					LEAF MOLD					
	Ohio		Indiana			Globe Strain		Globelle Strain			
Number	Healthy	Dis.	Dead	Tested	Healthy	Res.	Fleck	Susc.	Res.	Fleck	Susc.
	No.	No.	No.	No.	Pct.	No.	No.	No.	No.	No.	No.

Small-sized smooth red type (Cont.)

126424*	0	4	12	7	14				0	0	9
126451*	1	1	6	8	0						
126905*	0	0	14								
126912*	1	3	12	15	60 ^b /						
126915*	25	9	4 ^b /	14	38 ^b /						
126921*	0	3	11	15	7 ^b /						
126922*	0	2	12								
127467*	0	0	14	13	0 ^b /						
127468*	0	0	14	8	0						
127469*	0	0	14								
127795*	0	2	14	8	0						
127811*	1	0	14	9	28						
127812*	0	6	10								
127813*	4	4	7	8	12						
127816	0	0	16	6	17						
127818*	0	1	15								
127821	1	1	12								
128275	0	2	14								
128626	0	8	7								
128633	0	1	15								
129038	0	0	16								
129039	0	0	16								
129053	0	3	12								
129054	0	2	13								
129057	1	6	6								
129065	1	1	13								
129080	0	0	16								
129093	0	0	16								
129095	0	0	16								
129099	1	0	9								
129118	0	0	16								
129119	0	0	15								
129121	11	13	16								
129131	0	3	12								
134208	1	3	12						0	0	10
138630											

Small-sized smooth pink-fruited type

126412*	1	3	10	18	63 ^b /						
126414*	0	4	10	16	13 ^b /						
126820	0	0	14	7	14						

* Introductions identified by Muller (7).

^b/ Summation of more than one test.

Table 5 (Cont.)

	:SEPTORIA	:ALTERNARIA	:TOBACCO	:BACTERIAL	:BAC-	:BACTERIAL
P.I.	:LEAF SPOT	:LEAF SPOT	: MOSAIC	:	:TERIAL:	:WILT
Number	: Ohio:Ind.:	: Ohio:Ind.:	: Ohio:Ind.:	:Healthy:Dis.:	:Dead:SPCT	: healthy
	:Rank:	:Rank:	:Rank:	:Rank:	No. : No. No.:	Rank: Pct.

Small-sized smooth red type (Cont.)

126424*:	3	:	3	:	3	:	S	:	S	:	1	:	3	:	1	:	3	:
126451*:	:	:	3	:	3	:	:	:	S	:	:	:	:	:	:	:	3	:
126905*:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
126912*:	:	:	3	:	3	:	:	:	S	:	:	:	:	:	:	:	3	:
126915*:	:	:	3	:	3	:	:	:	S	:	:	:	:	:	:	:	3	:
126921*:	:	:	3	:	3	:	:	:	S	:	:	:	:	:	:	:	3	:
126922*:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
127467*:	:	:	3	:	3	:	:	:	S	:	:	:	:	:	:	:	3	:
127468*:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
127469*:	:	:	3	:	3	:	:	:	S	:	:	:	:	:	:	:	2	:
127795*:	:	:	3	:	3	:	:	:	S	:	0	:	3	:	1	:	2	:
127811*:	3	:	3	:	3	:	S	:	S	:	:	:	:	:	:	:	3	:
127812*:	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
127813*:	3	:	3	:	3	:	S	:	S	:	:	:	:	:	:	:	2	:
127816 :	3	:	3	:	3	:	S	:	S	:	:	:	:	:	:	:	2	:
127818*:	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
127821 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
128275 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
128626 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
128633 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
129038 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
129039 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
129053 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
129054 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
129057 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
129065 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
129080 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
129093 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
129095 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
129099 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
129118 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
129119 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
129121 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
129131 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:
134208 :	3	:	:	:	:	:	S	:	:	0	:	5	:	0	:	:	:	:
138630 :	3	:	:	:	:	:	S	:	:	:	:	:	:	:	:	:	:	:

Small-sized smooth pink-fruited type

126412*:	:	3	:	:	3	:	:	S	:	:	:	:	:	3	:
126414*:	:	3	:	:	3	:	:	S	:	:	:	:	:	3	:
126820 :	:	:	:	:	:	:	S	:	:	:	:	:	:	:	:

c/ Ranked for resistance. 0 = healthy; 3 = susceptibility; H = heterogeneous.

d/ Ranked for resistance. 0 = healthy; S = susceptibility; H = heterogeneous.

Table 5 (Cont.)

	:	FUSARIUM WILT					:	LEAF MOLD				
P.I.	:	Ohio		:	Indiana		:	Globe Strain		:	Globelle Strain	
Number	:	Healthy	:	Dis.	:	Dead	:	Tested	:	Healthy	:	Res.
	:		:		:		:		:	Fleck	:	Susc.
	:		:		:		:		:		:	
	:	No.	:	No.	:	No.	:	No.	:	Pct.	:	No.
	:		:		:		:		:	No.	:	No.
	:		:		:		:		:	No.	:	No.
	:		:		:		:		:	No.	:	No.
	:		:		:		:		:	No.	:	No.

Small-sized smooth yellow-fruited type

108244 : 0 : 6 : 26^{b/} : : : : : :

Small-sized smooth red-fruited type, apparently L.

esculentum X L. pimbinellifolium crosses

109315	:	0	:	0	:	16	:	20	:	5	:	:	:	:	:	:	:
109316	:	0	:	2	:	14	:	:	:	:	:	:	:	:	:	:	:
114038	:	0	:	0	:	16	:	:	:	:	:	:	:	:	:	:	:
114967	:	0	:	0	:	16	:	:	:	:	:	:	:	:	:	:	:
114968	:	0	:	2	:	14	:	:	:	:	:	:	:	:	:	:	:
114969	:	0	:	2	:	13	:	:	:	:	:	:	:	:	:	:	:
129022	:	7	:	0	:	9	:	:	:	:	:	:	5	:	4	:	0
129029	:	7	:	3	:	4	:	:	:	:	:	:	0	:	0	:	9
129060	:	0	:	0	:	12	:	:	:	:	:	:	:	:	:	:	:
129064	:	0	:	5	:	9	:	:	:	:	:	:	:	:	:	:	:
129082	:	0	:	1	:	15	:	:	:	:	:	:	:	:	:	:	:
129084	:	0	:	1	:	15	:	:	:	:	:	:	:	:	:	:	:
129090	:	0	:	1	:	15	:	:	:	:	:	:	0	:	0	:	5
129091	:	0	:	0	:	3	:	:	:	:	:	:	0	:	0	:	10
129096	:	0	:	0	:	16	:	:	:	:	:	:	:	:	:	:	:
129097	:	0	:	0	:	14	:	:	:	:	:	:	:	:	:	:	:
129098	:	1	:	1	:	12	:	:	:	:	:	:	:	:	:	:	:
129110	:	0	:	0	:	10	:	:	:	:	:	:	:	:	:	:	:
129123	:	0	:	1	:	14	:	:	:	:	:	:	:	:	:	:	:
129155	:	12	:	4	:	0	:	:	:	:	:	:	9	:	1	:	0
129686	:	0	:	1	:	15	:	:	:	:	:	:	4	:	0	:	4
135022	:	0	:	2	:	14	:	:	:	:	:	:	0	:	0	:	10

Small-sized rough red-fruited type

114965	:	0	:	3	:	13	:	:	:	:	:	:	:	:	:	:	:
126408	:	0	:	0	:	15	:	20	:	35 ^{b/}	:	:	:	:	:	:	:
126415*	:	0	:	0	:	14	:	9	:	55	:	:	:	:	:	:	:
126421*	:	0	:	8	:	8	:	16	:	54 ^{b/}	:	:	:	0	:	0	:
126422*	:	0	:	4	:	10	:	:	:	:	:	:	:	:	:	:	:
126907*	:	0	:	3	:	11	:	8	:	24	:	:	:	:	:	:	:
126908*	:	0	:	3	:	10	:	8	:	0	:	:	:	:	:	:	:
126909*	:	0	:	2	:	12	:	9	:	22	:	:	:	:	:	:	:
126910*	:	2	:	5	:	6	:	8	:	37	:	:	:	:	:	:	:
126911*	:	1	:	2	:	11	:	20	:	50 ^{b/}	:	:	:	:	:	:	:
126914*	:	10	:	3	:	1	:	21	:	43 ^{b/}	:	:	:	:	:	:	:

* Introductions identified by Muller (7).

^{b/} Summation of more than one test.

Table 5 (Cont.)

	:SEPTORIA	:ALTERNARIA	:TOBACCO	:BACTERIAL CANKER	:BAC-	:BACTERIAL
P.I.	:LEAF SPOT	:LEAF SPOT	:MCSAIC	:	:TERIAL	:ALIT
Number	:Ohio	:Ind.	:Ohio	:Ind.	:Ohio	:Ind.
	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c
	No.	No.	No.	No.	No.	No.
	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c
	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c

Small-sized smooth yellow-fruited type

108244 : : : : : : : : : :

Small-sized smooth red-fruited type, apparently L. esculentum X L. pimpinellifolium crosses

109315 :	:	3 :	:	3 :	:	S :	:	:	:	:	:	:	0
109316 :	:	:	:	:	:	:	:	:	:	:	:	:	:
114038 :	:	:	:	:	:	:	:	:	:	:	:	:	:
114967 :	:	:	:	:	:	:	:	:	:	:	:	:	:
114968 :	:	:	:	:	:	:	:	:	:	:	:	:	:
114969 :	:	:	:	:	:	:	:	:	:	:	:	:	:
129022 :	3 :	:	:	:	S :	:	0 :	2 :	1 :	:	:	:	:
129029 :	3 :	:	:	:	S :	:	0 :	5 :	0 :	:	:	:	:
129060 :	3 :	:	:	:	S :	:	:	:	:	:	:	:	:
129064 :	3 :	:	:	:	S :	:	:	:	:	:	:	:	:
129082 :	2 :	:	:	:	S :	:	:	:	:	:	:	:	:
129084 :	2 :	:	:	:	S :	:	:	:	:	:	:	:	:
129090 :	2 :	:	:	:	S :	:	:	:	:	:	:	:	:
129091 :	2 :	:	:	:	S :	:	0 :	0 :	5 :	:	:	:	:
129096 :	3 :	:	:	:	S :	:	0 :	2 :	4 :	:	:	:	:
129097 :	3 :	:	:	:	S :	:	:	:	:	:	:	:	:
129098 :	3 :	:	:	:	S :	:	:	:	:	:	:	:	:
129110 :	3 :	:	:	:	S :	:	:	:	:	:	:	:	:
129123 :	3 :	:	:	:	S :	:	:	:	:	:	:	:	:
129155 :	2 :	:	:	:	S :	:	0 :	3 :	1 :	:	:	:	:
129666 :	2 :	:	:	:	S :	:	0 :	4 :	1 :	:	:	:	:
135022 :	3 :	:	:	:	S :	:	0 :	3 :	2 :	:	:	:	:

Small-sized rough red-fruited type

114965 :	:	:	:	:	:	:	:	:	:	:	:	:	:
126408 :	:	3 :	:	3 :	:	S :	:	:	:	:	3 :	:	:
126415* :	3 :	3 :	:	3 :	:	S :	S :	:	:	:	3 :	:	:
126421* :	3 :	3 :	:	3 :	:	S :	S :	0 :	5 :	0 :	3 :	:	0
126422* :	3 :	3 :	:	3 :	:	S :	S :	:	:	:	3 :	:	:
126907* :	:	3 :	:	3 :	:	S :	:	:	:	:	3 :	:	:
126908* :	:	3 :	:	3 :	:	S :	:	:	:	:	3 :	:	:
126909* :	:	3 :	:	3 :	:	S :	:	:	:	:	2 :	:	:
126910* :	:	3 :	:	3 :	:	S :	:	:	:	:	:	:	:
126911* :	:	3 :	:	3 :	:	S :	:	:	:	:	2 :	:	:
126914* :	:	3 :	:	3 :	:	S :	:	:	:	:	3 :	:	:

c/ Ranked for resistance. 0 = healthy; 3 = susceptibility; H = heterogeneous.

d/ Ranked for resistance. 0 = healthy; S = susceptibility; H = heterogeneous.

Table 5 (Cont.)

P.I. Number	FUSARIUM WILT					LEAF MOLD					
	Ohio		Indiana		Pct.	Globe Strain		Globelle Strain		No.	No.
	Healthy	Dis.	Dead	Tested		Res.	Fleck	Susc.	Res.	Fleck	Susc.
	No.	No.	No.	No.		No.	No.	No.	No.	No.	No.
Small-sized rough red-fruited type (Cont.)											
126916*	1	:	2	11	:	:	:	:	:	:	:
127803*	1	:	3	11	:	7	29	:	:	:	:
127819*	0	:	0	16	:	8	0	:	:	:	:
128222	0	:	4	12	:	:	:	:	:	:	:
128628	0	:	6	9	:	:	:	:	:	:	:
129026	0	:	9	7	:	:	:	:	0	0	9
129055	0	:	3	10	:	:	:	:	:	:	:
129106	0	:	0	8	:	:	:	:	:	:	:
129115	0	:	0	16	:	:	:	:	:	:	:
Small-sized rough yellow-fruited type											
126413*	0	:	4	10	:	:	:	:	:	:	:
Medium-sized smooth red-fruited type											
92853	:	:	:	21	:	35 ^{b/}	:	:	:	:	:
92854	:	:	:	33	:	16 ^{b/}	:	:	:	:	:
92856	:	:	:	6	:	17	:	:	:	:	:
92857	:	:	:	:	:	:	:	:	:	:	:
92858	:	:	:	4	:	0	:	:	:	:	:
92859	:	:	:	25	:	4 ^{b/}	:	:	:	:	:
92860	:	:	:	14	:	0 ^{b/}	:	:	:	:	:
92862	:	:	:	13	:	28	:	:	:	:	:
95583	:	:	:	:	:	:	:	:	:	:	:
95586	:	:	:	10	:	0	:	:	:	:	:
98097	:	:	:	:	:	:	:	:	:	:	:
102716	:	:	:	:	:	:	:	:	:	:	:
102835	:	:	:	:	:	:	:	:	:	:	:
102836	:	:	:	:	:	:	:	:	:	:	:
105342	:	:	:	12	:	8 ^{b/}	:	:	:	:	:
109314	0	:	0	16	:	:	:	:	:	:	:
109512	0	:	1	14	:	:	:	:	:	:	:
109513	:	:	:	:	:	:	:	:	:	:	:
109833	0	:	0	14	:	15	26	:	:	:	:
109834	0	:	4	10	:	:	:	:	:	:	:
109835	1	:	1	14	:	:	:	:	:	:	:
109838	1	:	0	12	:	:	:	:	:	:	:
115601	0	:	1	14	:	:	:	:	:	:	:
115872	0	:	0	15	:	:	:	:	:	:	:
117563	1	:	0	15	:	:	:	:	:	:	:

* Introductions identified by Muller (7).

^{b/} Summation of more than one test.

Table 5 (Cont.)

	:SEPTORIA	:ALTERNARIA	:TOBACCO	:BACTERIAL	:BAC-	:BACTERIAL				
P.I.	:LEAF SPCT	:LEAF SPOT	: MOSAIC	:	:TERIAL:	:WILT				
Number	:Ohio	:Ind.	:Ohio:Ind.	:Ohio:Ind.	:Healthy:Dis.:	:Dead:SPCT	:Healthy			
	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	No.	:No.:	No.:	:Rank ^c	:Pct.

Small-sized rough red-fruited type (Cont.)

126916*	:	3	:	3	:	S	:	:	:	:	:
127803*	3	:	3	:	3	S	S	:	:	2	:
127819*	3	:	3	:	3	S	S	:	:	3	0
128222	3	:	:	:	:	S	:	:	:	:	:
128628	3	:	:	:	:	S	:	:	:	:	:
129026	3	:	:	:	:	S	:	0	3	1	:
129055	2	:	:	:	:	S	:	:	:	:	:
129106	3	:	:	:	:	S	:	:	:	:	:
129115	3	:	:	:	:	S	:	:	:	:	:

Small-sized rough yellow-fruited type

126413*	:	:	:	:	:	:	:	:	:	:	:
---------	---	---	---	---	---	---	---	---	---	---	---

Medium-sized smooth red-fruited type

92853	:	3	:	3	:	S	:	:	:	3	0
92854	:	3	:	3	:	S	:	:	:	3	0
92856	:	3	:	3	:	S	:	:	:	3	0
92857	:	3	:	3	:	S	:	:	:	3	:
92858	:	3	:	3	:	S	:	:	:	3	0
92859	:	3	:	3	:	S	:	:	:	3	0
92860	:	3	:	3	:	S	:	:	:	3	14
92862	:	3	:	3	:	S	:	:	:	3	14
95583	:	3	:	3	:	S	:	:	:	3	0
95586	:	3	:	3	:	S	:	:	:	3	0
98097	:	3	:	3	:	S	:	:	:	3	0
102716	:	3	:	3	:	S	:	:	:	3	0
102825	:	3	:	3	:	S	:	:	:	3	14
102836	:	3	:	3	:	S	:	:	:	:	:
105342	:	3	:	3	:	S	:	:	:	3	0
109314	:	:	:	:	:	:	:	:	:	:	:
109512	:	3	:	3	:	S	:	:	:	3	0
109513	:	3	:	3	:	S	:	:	:	3	0
109833	:	3	:	3	:	S	:	:	:	3	0
109834	:	3	:	3	:	S	:	:	:	3	28
109835	:	3	:	3	:	S	:	:	:	3	0
109838	:	3	:	3	:	S	:	:	:	3	0
115601	:	:	:	:	:	:	:	:	:	:	:
115872	:	:	:	:	:	:	:	:	:	:	:
117563	:	:	:	:	:	:	:	:	:	:	:

c/ Ranked for resistance. 0 = healthy; 3 = susceptibility; H = heterogeneous.

d/ Ranked for resistance. 0 = healthy; S = susceptibility; H = heterogeneous.

Table 5 (Cont.)

P.I.	FUSARIUM WILT					LEAF MOLD					
	Ohio		Indiana		Pct.	Globe Strain		Globelle Strain		No.	No.
	Healthy	Dis.	Dead	Tested		Res.	Fleck	Susc.	Res.	Fleck	Susc.
Number	No.	No.	No.	No.		No.	No.	No.	No.	No.	No.
Medium-sized smooth red-fruited type (Cont.)											
117565	0	1	15	:	:	:	:	:	:	:	:
117900	0	3	12	:	:	:	:	:	:	:	:
118326	0	2	14	:	:	:	:	:	:	:	:
118327	4	2	8	:	:	:	:	:	:	:	:
118328	0	3	12	:	:	:	:	:	:	:	:
118685	0	7	9	:	:	0	0	25	0	10	25 ^{b/}
118686	1	2	11	:	:	:	:	:	:	:	:
119104	1	4	11	:	:	:	:	:	:	:	:
119778	0	1	14	:	:	:	:	:	:	:	:
123433	0	3	11	:	:	:	:	:	:	:	:
123434	0	2	12	:	:	:	:	:	:	:	:
123435	0	1	13	:	:	:	:	:	:	:	:
123437	0	2	12	:	:	:	:	:	:	:	:
123438	0	0	14	:	:	:	:	:	:	:	:
126906	0	3	11	:	:	:	:	:	:	:	:
127799	1	4	9	8	12	:	:	:	:	:	:
127808	0	3	13	:	:	:	:	:	:	:	:
128224	0	1	15	:	:	:	:	:	:	:	:
128270	0	0	16	:	:	:	:	:	:	:	:
128274	0	1	12	:	:	:	:	:	:	:	:
128288	0	1	15	:	:	:	:	:	:	:	:
128294	0	2	14	:	:	:	:	:	:	:	:
128591	0	1	15	:	:	:	:	:	:	:	:
128595	0	4	12	:	:	:	:	:	:	:	:
128630	0	1	15	:	:	:	:	:	:	:	:
128641	0	2	14	:	:	:	:	:	:	:	:
128642	0	0	16	:	:	:	:	:	:	:	:
129018	0	3	13	:	:	:	:	:	:	:	:
129069	0	1	14	:	:	:	:	:	:	:	:
129070	0	0	16	:	:	:	:	:	:	:	:
129073	0	0	16	:	:	:	:	:	:	:	:
129077	0	0	16	:	:	:	:	:	:	:	:
129100	0	0	9	:	:	:	:	:	:	:	:
129109	0	2	11	:	:	:	:	:	:	:	:
129114	0	1	15	:	:	:	:	:	:	:	:
129126	0	0	16	:	:	:	:	:	:	:	:
129129	0	3	12	:	:	:	:	:	:	:	:
129140	0	1	15	:	:	:	:	:	:	:	:
131878	0	3	13	16	74 ^{b/}	:	:	:	:	:	:
131879	0	0	14	:	:	:	:	:	:	:	:
134207	1	2	13	:	:	:	:	:	0	0	9
138618	:	:	:	:	:	:	:	:	:	:	:
138622	:	:	:	:	:	:	:	:	:	:	:
138625	:	:	:	:	:	:	:	:	:	:	:

^{b/} Summation of more than one test.

Table 5 (Cont.)

	:SEPTORIA		:ALTERNARIA		:TOBACCO		:BACTERIAL CANKER		:BAC-		:BACTERIAL	
P.I.	:LEAF SPOT		:LEAF SPOT		: MOSAIC				: TERIAL		: WILT	
Number	:Ohio	:Ind.	:Ohio	:Ind.	:Ohio	:Ind.	:Healthy	:Dis.	:Dead	:SPOT	:Healthy	
	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:Rank ^c	:No.	:No.	:No.	:Rank ^c	:Pct.	

Medium-sized smooth red-fruited type (Cont.)

117565	:	:	:	:	:	:	:	:	:	:	:
117900	:	:	:	:	:	:	:	:	:	:	:
118326	:	:	:	:	:	:	:	:	:	:	:
118327	:	:	:	:	:	:	:	:	:	:	:
118328	:	:	:	:	:	:	:	:	:	:	:
118685	: 3	:	:	:	: S	:	: 1	: 3	: 0	:	:
118686	:	:	:	:	:	:	:	:	:	:	:
119104	:	:	:	:	:	:	:	:	:	:	:
119778	:	:	:	:	:	:	:	:	:	:	:
123433	:	:	:	:	:	:	:	:	:	:	:
123434	:	:	:	:	:	:	:	:	:	:	:
123435	:	:	:	:	:	:	:	:	:	:	:
123437	:	:	:	:	:	:	:	:	:	:	:
123438	:	:	:	:	:	:	:	:	:	:	:
126906	:	:	:	:	:	:	:	:	:	:	:
127799	:	: 3	:	: 3	:	: S	:	:	:	: 2	:
127808	:	:	:	:	:	:	:	:	:	:	:
123224	: 3	:	:	:	: S	:	:	:	:	:	:
128270	: 3	:	:	:	: S	:	:	:	:	:	:
128274	: 3	:	:	:	: S	:	:	:	:	:	:
128288	: 3	:	:	:	: S	:	:	:	:	:	:
128294	: 3	:	:	:	: S	:	:	:	:	:	:
123591	: 3	:	:	:	: S	:	:	:	:	:	:
123595	: 3	:	:	:	: S	:	:	:	:	:	:
123630	: 2	:	:	:	: S	:	:	:	:	:	:
123641	: 3	:	:	:	: S	:	:	:	:	:	:
123642	: 3	:	:	:	: S	:	:	:	:	:	:
129018	: 3	:	:	:	: S	:	:	:	:	:	:
129069	: 1	:	:	:	: S	:	:	:	:	:	:
129070	: 2	:	:	:	: S	:	:	:	:	:	:
129073	: 3	:	:	:	: S	:	:	:	:	:	:
129077	: 3	:	:	:	: S	:	:	:	:	:	:
129100	: 3	:	:	:	: S	:	:	:	:	:	:
129109	: 3	:	:	:	: S	:	:	:	:	:	:
129114	: 3	:	:	:	: S	:	:	:	:	:	:
129126	: 3	:	:	:	: S	:	:	:	:	:	:
129129	: 3	:	:	:	: S	:	:	:	:	:	:
129140	: 3	:	:	:	: S	:	:	:	:	:	:
131878	: 3	:	:	:	: S	:	:	:	:	:	:
131879	: 3	:	:	:	: S	:	:	:	:	:	:
134207	: 3	:	:	:	: S	: S	: 0	: 3	: 0	: 3	:
138618	: 3	:	:	:	: S	: S	:	:	:	: 3	: 0
138622	: 3	:	:	:	: S	:	:	:	:	:	:
138625	: 3	:	:	:	: S	:	:	:	:	:	:

c/ Ranked for resistance. 0 = healthy; 3 = susceptibility; H = heterogeneous.

d/ Ranked for resistance. 0 = healthy; S = susceptibility; H = heterogeneous.

Table 5 (Cont.)

P.I.	FUSARIUM WILT					LEAF MOLD					
	Ohio	Indiana	Globe Strain	Globelle Strain							
Number	Healthy	Dis.	Dead	Tested	Healthy	Res.	Fleck	Susc.	Res.	Fleck	Susc.
	No.	No.	No.	No.	Pct.	No.	No.	No.	No.	No.	No.
Medium-sized smooth yellow-fruited type											
128248 :	0	1	15								
Medium-sized rough red-fruited type											
95592 :											
102714 :				10	30						
105267 :				14	28						
109112 :	0	4	12	14	87 ^b / ₁₄						
109832 :	0	4	12								
109836 :	0	0	16								
114966 :	0	1	15								
118783 :	0	0	14								
118787 :	0	0	15								
118789 :	0	2	13								
125831 :	3	3	8	12	83 ^b / ₁₂						
126407 :	2	3	10	24	9 ^b / ₂₄						
126919* :	0	2	12	12	25 ^b / ₁₂						
126920* :	0	2	12	8	0						
127582 :	0	1	14								
127794* :	0	3	11	8	0						
127796* :	1	3	10	8	0						
127797* :	0	3	11	18	9 ^b / ₁₈						
127798* :	1	0	13	7	29						
127800* :	0	3	13	8	0						
127801* :	0	0	16	8	25						
127804 :	1	0	15								
127824 :	0	1	15	10	0						
128225 :	0	1	15								
128229 :	0	1	15								
128237 :	0	0	16								
128239 :	1	4	11								
128241 :	0	3	13								
128242 :	0	3	13								
128243 :	0	1	15								
128254 :	0	5	11								
128599 :	0	0	15								
128603 :	0	1	15								
128604 :	0	0	16								
128605 :	0	2	13								
128625 :	0	1	15								
128634 :	1	3	12						0	0	10

* Introductions identified by Muller (7).

^b/ Summation of more than one test.

Table 5. (Cont.)

	:SEPTORIA	:ALTERNARIA:	TOBACCO	:BACTERIAL CANKER	:BAC-	:BACTERIAL
P.I.	:LEAF SPCT	:LEAF SPOT	:MOSAIC	:	:TERIAL:	:WILT
Number	:Ohio	:Ind.:Ohio:Ind.	:Ohio:Ind.:Healthy:	Dis.:Dead:	SPOT	:Healthy
	:Rank ^c	:Rank ^c :Rank ^c :Rank ^c	:Rank ^c :Rank ^c	No.:	No.:No:	Rank ^c :Pct.

Medium-sized smooth yellow-fruited type

128248 : 3 : : : : S : : : : :

Medium-sized rough red-fruited type

95592 : : 3 : : 3 : : S : : : 3 : 14
 102714 : : 3 : : 3 : : S : : : 2 : 14
 105267 : : 3 : : 3 : : S : : : 3 : 0
 109112 : : 3 : : 3 : : S : : : 3 : 0
 109832 : : : : : : : : : : :
 109836 : : : : : : : : : : :
 114966 : : : : : : : : : : :
 118783 : : : : : : : : : : :
 118787 : : : : : : : : : : :
 118789 : : : : : : : : : : :
 125831 : : 3 : : 3 : : S : : : 3 :
 126407 : : 3 : : 3 : : S : : : 3 : 0
 126919* : : 3 : : 3 : : S : : : 3 :
 126920* : : 3 : : 3 : : S : : : 2 :
 127582 : : : : : : : : : : :
 127794* : : 3 : : 3 : : S : : : 2 :
 127796* : : 3 : : 3 : : S : : : 3 :
 127797* : : 3 : : 3 : : S : : : 3 :
 127798* : : 3 : : 3 : : S : : : 3 :
 127800* : : 3 : : 3 : : S : : : 3 :
 127801* : : 3 : : 3 : : S : : : 1 :
 127804* : : : : : : : : : : :
 127824 : 3 : 3 : : 3 : 3 : S : : : 1 :
 128225 : 3 : 3 : : 3 : S : S : : : :
 128229 : 3 : : : : S : : : : : :
 128237 : 3 : : : : S : : : : : :
 128239 : 3 : : : : S : : : : : :
 128241 : 3 : : : : S : : : : : :
 128242 : 3 : : : : S : : : : : :
 128243 : 3 : : : : S : : : : : :
 128254 : 3 : : : : S : : : : : :
 128599 : 3 : : : : S : : : : : :
 128603 : 3 : : : : S : : : : : :
 128604 : 3 : : : : S : : : : : :
 128605 : 3 : : : : S : : : : : :
 128625 : 3 : : : : S : : : : : :
 128634 : 3 : : : : S : : 0 : 5 : 0 : :

c/ Ranked for resistance. 0 = healthy; 3 = susceptibility; H = heterogeneous.

d/ Ranked for resistance. 0 = healthy; S = susceptibility; H = heterogeneous.

Table 5 (Cont.)

P.I. Number	FUSARIUM WILT					LEAF MOLD					
	Ohio	Indiana	Globe Strain	Globalle Strain		Healthy:Res.	Dis.:Fleck	Dead:Susc.	Tested:Res.	Healthy:Fleck	Dis.:Susc.
	No.	No.	No.	No.	Pct.	No.	No.	No.	No.	No.	No.
Medium-sized rough red-fruited type (Cont.)											
129024 :	:	:	:	:	:	:	:	:	:	:	:
129025 :	O	4	12	:	:	:	:	:	:	:	:
129032 :	1	7	8	:	:	:	:	0	0	6	:
129033 :	O	1	15	:	:	:	:	0	2	3	:
129058 :	C	1	5	:	:	:	:	0	2	7	:
129067 :	C	7	9	:	:	:	:	:	:	:	:
129086 :	O	0	16	:	:	:	:	:	:	:	:
129117 :	O	0	16	:	:	:	:	:	:	:	:
129125 :	O	1	15	:	:	:	:	:	:	:	:
129137 :	O	1	15	:	:	:	:	:	:	:	:
129692 :	C	0	16	:	:	:	:	:	:	:	:
129693 :	C	1	15	:	:	:	:	:	:	:	:
131882 :	O	1	15	16	Op/	:	:	:	:	:	:
130627 :	:	:	:	:	:	:	:	:	:	:	:
Medium-sized rough pink-fruited type											
118404 :	C	2	14	:	:	:	:	:	:	:	:
118738 :	O	0	14	:	:	:	:	:	:	:	:
Medium-sized rough yellow-fruited type											
127823* :	O	5	11	:	:	:	:	:	:	:	:
Large-sized smooth red-fruited type											
16160 :	:	:	27	3b/	:	:	:	:	:	:	:
92363 :	:	:	5	20	:	:	:	:	:	:	:
95584 :	:	:	:	:	:	:	:	:	:	:	:
95585 :	:	:	5	0	:	:	:	:	:	:	:
95587 :	:	:	:	:	:	:	:	:	:	:	:
95589 :	:	:	8	12	:	:	:	:	:	:	:
95590 :	:	:	17	18	:	:	:	:	:	:	:
102715 :	:	:	:	:	:	:	:	:	:	:	:
102717 :	:	:	:	:	:	:	:	:	:	:	:
102722 :	:	:	6	50	:	:	:	:	:	:	:
102723 :	:	:	:	:	:	:	:	:	:	:	:
102724 :	:	:	3	0	:	:	:	:	:	:	:
102735 :	:	:	11	27	:	:	:	:	:	:	:
109713 :	O	0	16	:	:	:	:	:	:	:	:
109831 :	C	1	15	12	83b/	:	:	:	:	:	:

* Introductions identified by Muller (7).

b/ Summation of more than one test.

Table 5 (Cont.)

	:SEPTORIA	:ALTERNARIA:	TOBACCO	:BACTERIAL	CANKER	:BAC-	:BACTERIAL	
P.I.	:LEAF SPOT	:LEAF SPOT	: MOSAIC	:	:	:TERIAL:	:WILT	
Number	:Ohio	:Ind.	:Ohio	:Ind.	:Ohio	:Ind.	:Healthy:Dis.:Dead:SPOT	:Healthy
	:Rank ^c :	:Rank ^c :	:Rank ^c :	:Rank ^c :	:Rank ^c :	:Rank ^c :	No. : No.: No.: Rank ^c :	Pct.

Medium-sized rough red-fruited type (Cont.)

129024 :	3 :	:	:	:	S :	:	0 :	3 :	0 :	:
129025 :	3 :	:	:	:	S :	:	0 :	1 :	4 :	:
129032 :	3 :	:	:	:	S :	:	0 :	4 :	0 :	:
129033 :	3 :	:	:	:	S :	:	0 :	5 :	0 :	:
129058 :	2 :	:	:	:	S :	:	:	:	:	:
129067 :	3 :	:	:	:	S :	:	:	:	:	:
129086 :	3 :	:	:	:	S :	:	:	:	:	:
129117 :	3 :	:	:	:	S :	:	:	:	:	:
129125 :	3 :	:	:	:	S :	:	:	:	:	:
129137 :	3 :	:	:	:	S :	:	:	:	:	:
129692 :	3 :	:	:	:	S :	:	:	:	:	:
129693 :	3 :	:	:	:	S :	:	:	:	:	:
131882 :	3 :	:	:	:	S :	S :	:	:	:	3 : 0
138627 :	3 :	:	:	:	S :	:	:	:	:	:

Medium-sized rough pink-fruited type

118404 :	:	:	:	:	:	:	:	:	:	:
118788 :	:	:	:	:	:	:	:	:	:	:

Medium-sized rough yellow-fruited type

127823*:	:	:	:	:	:	:	:	:	:	:
----------	---	---	---	---	---	---	---	---	---	---

Large-sized smooth red-fruited type

16160 :	:	3 :	:	3 :	:	S :	:	:	:	3 :	0
92863 :	:	3 :	:	3 :	:	S :	:	:	:	3 :	0
95584 :	:	3 :	:	3 :	:	S :	:	:	:	3 :	0
95585 :	:	3 :	:	3 :	:	S :	:	:	:	3 :	0
95587 :	:	3 :	:	3 :	:	S :	:	:	:	2 :	
95589 :	:	3 :	:	3 :	:	S :	:	:	:	3 :	14
95590 :	:	3 :	:	3 :	:	S :	:	:	:	:	
102715 :	:	:	:	:	:	S :	:	:	:	3 :	
102717 :	:	3 :	:	3 :	:	S :	:	:	:	3 :	
102722 :	:	3 :	:	3 :	:	S :	:	:	:	3 :	0
102723 :	:	3 :	:	3 :	:	S :	:	:	:	3 :	0
102724 :	:	3 :	:	3 :	:	S :	:	:	:	3 :	0
102725 :	:	3 :	:	3 :	:	S :	:	:	:	3 :	0
109113 :	:	3 :	:	3 :	:	S :	:	:	:	:	0
109831 :	:	3 :	:	3 :	:	S :	:	:	:	3 :	0

c/ Ranked for resistance. C = healthy; 3 = susceptibility; H = heterogeneous.

d/ Ranked for resistance. C = healthy; S = susceptibility; H = heterogeneous.

Table 5 (Cont.)

P.I.	FUSARIUM WILT					LEAF MOLD					
	Ohio		Indiana			Globe Strain		Globelle Strain			
Number	Healthy	Dis.	Dead	Tested	Healthy	Res.	Fleck	Susc.	Res.	Fleck	Susc.
	No.	No.	No.	No.	Pct.	No.	No.	No.	No.	No.	No.

Large-sized smooth red-fruited type (Cont.)

109337	0	1	13	:	:	:	:	:	:	:	:
116219	0	0	16	:	:	:	:	:	:	:	:
119776	0	3	12	:	:	:	:	:	:	:	:
120261	0	1	13	:	:	:	:	:	:	:	:
120274	3	2	10	:	:	:	:	:	:	:	:
128218	1	2	13	:	:	:	:	0	0	0	10
128285	0	6	10	:	:	:	:	:	:	:	:
128287	0	3	13	:	:	:	:	:	:	:	:
128289	0	7	9	:	:	:	:	:	:	:	:
128290	0	1	15	:	:	:	:	:	:	:	:
128292	0	2	14	:	:	:	:	:	:	:	:
128293	0	7	9	:	:	:	:	0	0	0	10
128598	0	0	15	:	:	:	:	:	:	:	:
128602	0	0	10	:	:	:	:	:	:	:	:
128610	0	2	14	:	:	:	:	:	:	:	:
128613	0	0	16	:	:	:	:	:	:	:	:
128615	0	2	14	:	:	:	:	:	:	:	:
129068	1	7	7	:	:	:	:	:	:	:	:
129113	0	0	10	:	:	:	:	:	:	:	:
129132	0	0	16	:	:	:	:	:	:	:	:
129133	0	0	16	:	:	:	:	:	:	:	:
129134	0	0	15	:	:	:	:	:	:	:	:
129138	0	0	16	:	:	:	:	:	:	:	:
129139	0	0	16	:	:	:	:	:	:	:	:
131877	0	1	15	6	33	:	:	:	:	:	:

Large-sized smooth pink-fruited type

109514	0	0	16	:	:	:	:	0	0	0	10
127802	0	3	13	:	:	:	:	0	0	0	10

Large-sized rough red-fruited type

95591	:	:	28	5b/	:	:	:	:	:	:	:
102713	:	:	4	0	:	:	:	:	:	:	:
105266	:	:	:	:	:	:	:	:	:	:	:
120258	0	1	14	:	:	:	:	:	:	:	:
120276	0	2	13	:	:	:	:	:	:	:	:
124582	:	:	:	:	:	:	:	:	:	:	:
128217	0	0	16	:	:	:	:	:	:	:	:
128221	0	0	16	:	:	:	:	:	:	:	:

b/ Summation of more than one test.

Table 5 (Cont.)

	:SEPTORIA	:ALTERNARIA	:TOBACCO	:BACTERIAL	:BAC-	:BACTERIAL
P.I.	:LEAF SPOT	:LEAF SPOT	:MOSAIC	:	:TERIAL	:WILT
Number	:Ohio	:Ind.:Ohio	:Ind.:Ohio	:Ind.:Healthy	:Dis.:Dead	:SPOT : Healthy
	:Rank	:Rank	:Rank	:Rank	:No. : No. : No.	:Rank : Pct.

Large-sized smooth red-fruited type (Cont.)

109837	:	:	:	:	:	:	:	:	:	:
116219	:	:	:	:	:	:	:	:	:	:
119776	:	:	:	:	:	:	:	:	:	:
120261	:	:	:	:	:	:	:	:	:	:
120274	:	:	:	:	:	:	:	:	:	:
128218	: 3	:	:	: S	:	0	: 4	: 0	:	:
128285	: 3	:	:	: S	:	:	:	:	:	:
128287	: 3	:	:	: S	:	:	:	:	:	:
128289	: 3	:	:	: S	:	:	:	:	:	:
128290	: 3	:	:	: S	:	:	:	:	:	:
128292	: 3	:	:	: S	:	:	:	:	:	:
128293	: 3	:	:	: S	:	0	: 4	: 1	:	:
128598	: 3	:	:	: S	:	:	:	:	:	:
128602	: 3	:	:	: S	:	:	:	:	:	:
128610	: 3	:	:	: S	:	:	:	:	:	:
128613	: 3	:	:	: S	:	:	:	:	:	:
128615	: 3	:	:	: S	:	:	:	:	:	:
129068	: 3	:	:	: S	:	:	:	:	:	:
129113	: 3	:	:	: S	:	:	:	:	:	:
129132	: 3	:	:	: S	:	:	:	:	:	:
129133	: 3	:	:	: S	:	:	:	:	:	:
129134	: 3	:	:	: S	:	:	:	:	:	:
129138	: 3	:	:	: S	:	:	:	:	:	:
129139	: 3	:	:	: S	:	:	:	:	:	:
131877	: 3	: 3	:	: 3	: S : S	:	:	:	: 3	:

Large-sized smooth pink-fruited type

109514	: 3	: 3	:	: 3	: S : S	: 0	: 4	: 0	: 3	: 0
127802	: 3	:	:	:	: S	: 2	: 3	: 1	:	:

Large-sized rough red-fruited type

95591	:	: 3	:	: 3	: S : S	:	:	:	: 3	: 14
102713	:	: 3	:	: 3	: S	:	:	:	:	: 0
105266	:	:	:	:	:	:	:	:	:	:
120258	: 3	:	:	: S	:	:	:	:	:	:
120276	: 3	:	:	: S	:	:	:	:	:	:
124532	:	:	:	:	:	:	:	:	:	:
128217	: 3	:	:	: S	:	:	:	:	:	:
128221	: 3	:	:	: S	:	:	:	:	:	:

c/ Ranked for resistance. 0 = healthy; 3 = susceptibility; H = heterogeneous.

d/ Ranked for resistance. 0 = healthy; S = susceptibility; H = heterogeneous.

Table 5 (Cont.)

P.I. Number	FUSARIUM WILT					LEAF MOLD					
	Ohio		Indiana		Globe Strain	Globelle Strain					
	Healthy	Dis.	Dead	Tested		Res.	Fleck	Susc.	Res.	Fleck	Susc.
	No.	No.	No.	No.	Pct.	No.	No.	No.	No.	No.	No.
Large-sized rough red-fruited type (Cont.)											
128223 :	0	:	1	:	15	:	:	:	:	:	:
128255* :	0	:	1	:	15	:	:	:	:	:	:
128256 :	0	:	3	:	13	:	:	:	:	:	:
128257 :	0	:	2	:	13	:	:	:	:	:	:
128286 :	0	:	2	:	14	:	:	:	:	:	:
128291 :	0	:	3	:	13	:	:	:	:	:	:
128594 :	0	:	0	:	16	:	:	:	:	:	:
128600 :	1	:	1	:	12	:	:	:	:	:	:
128601 :	0	:	2	:	12	:	:	:	:	:	:
128606 :	0	:	0	:	16	:	:	:	:	:	:
128607 :	0	:	0	:	6	:	:	:	:	:	:
128608 :	0	:	0	:	16	:	:	:	:	:	:
128614 :	0	:	2	:	14	:	:	:	:	:	:
128616 :	0	:	3	:	13	:	:	:	:	:	:
128617 :	1	:	1	:	11	:	:	:	:	:	:
128618 :	1	:	6	:	9	:	:	:	:	:	:
128621 :	4	:	10	:	2	:	:	:	:	:	:
128623 :	0	:	0	:	16	:	:	:	:	:	:
128640 :	0	:	0	:	16	:	:	:	:	:	:
129034 :	0	:	6	:	10	:	:	:	0	3	4
129043 :	0	:	0	:	16	:	:	:	:	:	:
129056 :	0	:	5	:	8	:	:	:	:	:	:
129061 :	0	:	0	:	16	:	:	:	0	0	16
129072 :	0	:	0	:	16	:	:	:	:	:	:
129075 :	0	:	0	:	16	:	:	:	:	:	:
129076 :	0	:	0	:	15	:	:	:	:	:	:
129130 :	0	:	4	:	11	:	:	:	:	:	:
129688 :	0	:	4	:	12	:	:	:	0	0	9
Large-sized rough yellow-fruited type											
128234 :	0	:	6	:	10	:	:	:	:	:	:
128250 :	0	:	3	:	13	:	:	:	:	:	:
Unclassified											
93046 :	:	:	:	:	7	:	14	:	:	:	:
102884 :	:	:	:	:	24	:	9	:	:	:	:
103055 :	:	:	:	:	6	:	33	:	:	:	:
105225 :	:	:	:	:	14	:	0	:	:	:	:
105266 :	:	:	:	:	14	:	0	:	:	:	:

* Introductions identified by Muller (7).

b/ Summation of more than one test.

Table 5. (Cont.)

	: SEPTORIA	: ALTERNARIA	: TOBACCO	: BACTERIAL	: CANKER	: BAC-	: BACTERIAL
P.I.	: LEAF SPCT	: LEAF SPCT	: MOSAIC	:	:	: TERIAL	: WILT
Number	: Ohio	: Ind.	: Ohio	: Ind.	: Ohio	: Ind.	: Healthy
	: Rank ^c	: Rank ^c	: Rank ^c	: Rank ^c	: Rank ^d	: Rank ^d	: No.
							: No.
							: No.
							: Rank ^c
							: Pct.

Large-sized rough red-fruited type (Cont.)

128223	:	3	:	:	:	S	:	:	:	:	:
128255*	:	3	:	:	:	S	:	:	:	:	:
128256	:	3	:	:	:	S	:	:	:	:	:
128257	:	3	:	:	:	S	:	:	:	:	:
128286	:	3	:	:	:	S	:	:	:	:	:
128291	:	3	:	:	:	S	:	:	:	:	:
128594	:	3	:	:	:	S	:	:	:	:	:
128600	:	3	:	:	:	S	:	:	:	:	:
128601	:	3	:	:	:	S	:	:	:	:	:
128606	:	3	:	:	:	S	:	:	:	:	:
128607	:	3	:	:	:	S	:	:	:	:	:
128608	:	3	:	:	:	S	:	:	:	:	:
128614	:	3	:	:	:	S	:	:	:	:	:
128616	:	3	:	:	:	S	:	:	:	:	:
128617	:	3	:	:	:	S	:	:	:	:	:
128618	:	3	:	:	:	S	:	:	:	:	:
128621	:	3	:	:	:	S	:	:	:	:	:
128623	:	3	:	:	:	S	:	:	:	:	:
128640	:	3	:	:	:	S	:	:	:	:	:
129034	:	3	:	:	:	S	:	1	4	0	:
129043	:	3	:	:	:	S	:	:	:	:	:
129056	:	3	:	:	:	S	:	:	:	:	:
129061	:	3	:	:	:	S	:	0	2	1	:
129072	:	3	:	:	:	S	:	:	:	:	:
129075	:	3	:	:	:	S	:	:	:	:	:
129076	:	3	:	:	:	S	:	:	:	:	:
129130	:	3	:	:	:	S	:	:	:	:	:
129688	:	3	:	:	:	S	:	0	5	0	:

Large-sized rough yellow-fruited type

128234	:	3	:	:	:	S	:	:	:	:	:
128250	:	3	:	:	:	S	:	:	:	:	:

Unclassified

93046	:	:	3	:	:	3	:	:	S	:	:	:	:	:
102884	:	:	3	:	:	3	:	:	S	:	:	:	3	0
103055	:	:	3	:	:	3	:	:	S	:	:	:	3	0
105225	:	:	3	:	:	3	:	:	S	:	:	:	3	0
105266	:	:	3	:	:	3	:	:	S	:	:	:	3	0

c/ Ranked for resistance. 0 = healthy; 3 = susceptibility; H = heterogeneous.

d/ Ranked for resistance. 0 = healthy; S = susceptibility; H = heterogeneous.

Table 5 (Cont.)

	FUSARIUM WILT					LEAF MOLD					
P.I.	Ohio		Indiana			Globe Strain	Globe Strain				
Number	Healthy	Dis.	Dead	Tested	Healthy	Res.	Fleck	Susc.	Res.	Fleck	Susc.
	No.	No.	No.	No.	Pct.	No.	No.	No.	No.	No.	No.

Unclassified (Cont.)

124582	:	:	:	:	33	:	13 ^{b/}	:	:	:	:	:	:			
126815	:	:	:	:	8	:	0	:	:	:	:	:	:			
127798	:	:	:	:	7	:	28	:	:	:	:	:	:			
129081	:	0	:	0	:	16	:	:	:	:	:	:	:			
129148	:	0	:	5	:	11	:	:	:	:	8	:	2	:	0	
129691	:	0	:	0	:	16	:	:	:	:	:	0	:	0	:	10

b/ Summation of more than one test.

Table 5. (Cont.)

	:SEPTORIA	:ALTERNARIA:	TOBACCO	:BACTERIAL	CANKER	:BAC-	:BACTERIAL
P.I.	:LEAF SPOT	: LEAF SPOT:	MOSAIC	:		:TERIAL:	WILT
Number	:Ohio	:Ind.:	Ohio:Ind.	:Ohio:Ind.:	Healthy:Dis.:	Dead:SPOT	: Healthy
	:Rank ^c :	Rank ^c :	Rank ^c :	Rank ^c :	Rank ^d No.	: No.:	No.:Rank ^c : Pct.

Unclassified (Cont.)

124582	:	: 3 :	:	3 :	:	S :	:	:	:	3 :	0
126815	:	: 3 :	:	3 :	:	S :	:	:	:	1 :	
127798	:	: 3 :	:	3 :	:	S :	:	:	:	:	
129081	:	:	:	:	:	:	:	:	:	:	
129148	:	:	:	:	:	:	0	:	4	:	0
129691	:	:	:	:	:	:	0	:	6	:	0

c/ Ranked for resistance. 0 = healthy. 3 = susceptibility; H = heterogeneous.

d/ Ranked for resistance. 0 = healthy. S = susceptibility; H = heterogeneous.

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THE PLANT DISEASE REPORTER

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SUPPLEMENT 137

HOST AND PATHOGEN INDICES TO THE DISEASES OBSERVED
ON GRASSES IN CERTAIN WESTERN STATES DURING 1941

August 15, 1942

The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

HOST AND PATHOGEN INDICES TO THE DISEASES OBSERVED

ON GRASSES IN CERTAIN WESTERN STATES DURING 1941^{1/}

By George W. Fischer, Roderick Sprague,
Howard W. Johnson; and John R. Hardison^{2/}

Plant Disease Reporter
Supplement 137

August 15, 1942

The host and pathogen indices which follow summarize the data resulting from collections and observations of grass diseases in the States of Arizona, California, Idaho, Minnesota, Nebraska, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming in 1941.

Most of the records are from the extensive observational row nurseries of the Soil Conservation Service and the Bureau of Plant Industry, United States Department of Agriculture, at Mandan, North Dakota; Pullman, Washington; Corvallis, Oregon; Tucson, Arizona and Pleasanton, California. State observational grass nurseries at Berkeley and Davis, California were surveyed intensively also. However, these records are well supplemented and substantiated by extensive collecting and survey trips in most of the States mentioned above.

In general the 1941 growing season was one of almost unprecedented rainfall, in most of the area covered. As a result, the development of foliage diseases was considerably favored as evidenced by the unusual number and extent of development of leaf spots, rusts, and bacterial diseases.

This report includes 259 species and varieties of native and introduced grasses, on which a total of 161 diseases are recorded: 62 leaf spots, streaks, etc., 30 rusts, 28 rootrots and secondary rootrots, and 25 smuts. Some of these diseases were found on a large number of grasses, as outlined in Table 1.

^{1/}Grass disease investigations of the Divisions of Forage Crops and Diseases, Cereal Crops and Diseases, and Dry Land Agriculture, Bureau of Plant Industry in cooperation with the Nursery Division, Soil Conservation Service, United States Department of Agriculture, and the North Dakota and Washington Agricultural Experiment Stations. Published as Scientific Paper No. 517, College of Agriculture and Agricultural Experiment Station, State College of Washington, Pullman.

^{2/}Associate pathologist, pathologist, pathologist in charge of investigations of forage crop diseases, and agent, respectively, Bureau of Plant Industry, United States Department of Agriculture, Pullman, Washington; Mandan, North Dakota; and Washington, D. C.

Table 1. Number of host species and varieties recorded for the more prevalent grass diseases in the western states in 1941.

DISEASE	CAUSAL ORGANISM	NUMBER OF HOSTS
Stem rust	<u>Puccinia graminis</u>	81
Rootrot	<u>Fusarium scirpi acuminatum</u>	63
Leaf rust	<u>Puccinia rubigo-vera</u>	54
Stripe rust	<u>Puccinia glumarum</u>	53
Leaf spot	<u>Scolecotrichum graminis</u>	53
Rootrot	<u>Helminthosporium sativum</u>	53
Ergot	<u>Claviceps purpurea</u>	50
Selenophoma stem speckle and leaf spot	<u>Selenophoma donacis</u> and varieties	43
Root browning	<u>Pythium arrhenomanes</u>	42
Root necrosis and Damping-off	<u>Pythium debaryanum</u>	39
Rootrot	<u>Rhizoctonia solani</u>	36
Bends	Cause unknown	33
Powdery mildew	<u>Erysiphe graminis</u>	31
Stem smut	<u>Ustilago hypodytes</u>	26
Head smut	<u>Ustilago bullata</u>	26
Chocolate spot	<u>Bacterium coronafaciens</u> <u>atropurpureum</u>	24
Brown stripe rust	<u>Puccinia montanensis</u>	22
Crown rust	<u>Puccinia coronata</u>	16
Stripe smut	<u>Ustilago striaeformis</u>	13

It has seemed desirable to give the authorities for grass names in the host index and for the pathogens in the pathogen index.

The task of identifying the thousands of collections forming the basis for this report was in general divided as follows: Smuts and rusts were identified at Pullman, Washington, leaf spots and root rots at Mandan, North Dakota, and other diseases at both places. Many of the pathogens are named to genus only, because they are being studied further or are in the process of publication elsewhere. This is particularly true for species of Ascochyta, Selenophoma, Septoria, Tilletia and Ustilago. The collecting was performed by the authors as follows: Fischer and Hardison covered Washington (east of Cascades), Idaho, Montana, western Wyoming, northern Utah, and northeastern Oregon. Sprague collected in Montana, North and South Dakota and adjacent Minnesota, briefly in Nebraska and, on personal travel, in southern Montana, northwestern Wyoming, northern Idaho, and central Washington; Johnson collected in Arizona, California, and western Oregon.

The authors are grateful to the many persons who have aided in this survey by collecting and submitting grass disease specimens from practically all parts of the area represented.

HOST INDEX

AEGILOPS CYLINDRICA Host.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.^{3/}

AEGILOPS TRIUNCIALIS L. (P.I. 134607)

Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.

AGROPYRON ALBICANS Scribn. & Smith

Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash.

Stem rust, *Puccinia graminis* -- Pullman, Wash.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

AGROPYRON AMURENSE Drobov (P.I. 131532)

Bends, cause undet.^{4/} -- Pullman, Wash.

Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.

Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.

Stem smut, *Ustilago hypodytes* -- Pullman, Wash.

AGROPYRON CANINUM(L.) Beauv. (F.P.I. 90124)

Damping-off, *Pythium ultimum* -- Mandan, N. Dak.

Ergot, *Claviceps purpurea* -- Pullman, Wash.

Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash.

Leaf spot, *Ascochyta agropyrina* -- Mandan, N. Dak.

Septoria sp. -- Pullman, Wash.

Leaf streak, *Scolecotrichum graminis* -- Mandan, N. Dak.

Root necrosis, *Pythium debaryanum* -- Mandan, N. Dak.

Secondary rootrot, *Fusarium scirpi* -- Mandan, N. Dak.

Stem rust, *Puccinia graminis* -- Pullman, Wash.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

AGROPYRON CILIARE (Trin.) Franch. (P.I. 109805)

Brown stripe rust, *Puccinia montanensis* -- Mandan, N. Dak.

Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.

Root necrosis, *Pythium debaryanum* -- Mandan, N. Dak.

Rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

Rhizoctonia solani -- Mandan, N. Dak.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

AGROPYRON CRISTATUM (L.) Gaertn.

Bacterial slime spot, *Aplanobacter agropyri* -- Mandan, N. Dak.

Bends, cause undet. -- Pullman, Wash.; western Mont.

Brown stripe rust, *Puccinia montanensis* -- Mandan, N. Dak.

^{3/} Most of the records from Pullman, Wash. and Mandan, N. Dak. are the result of intensive row-by-row notes and collections from the very extensive Soil Conservation Service and Bureau of Plant Industry nurseries at both places.

^{4/} See Phytopath. 31: 674-676. 1941

AGROPYRON CRISTATUM cont.

- Damping-off, *Pythium irregulare* -- Mandan, N. Dak.
Pythium ultimum -- Mandan, N. Dak.
 Ergot, *Claviceps purpurea* -- Pullman, Wash.; eastern, central, and southern Mont.; N. and S. Dak. Common at Mandan, N. Dak.
 Leaf rot, *Ascochyta agropyrina* -- Forsythe, Mont.
 Leaf rust, *Puccinia rubigo-vera* -- Mandan, N. Dak.
 Root browning, *Pythium arrhenomanes* -- General in N. and S. Dak.
 Root necrosis, *Pythium debaryanum* -- Mandan, N. Dak.
 Rootrot, *Fusarium graminearum* -- Mandan, N. Dak.
 Fusarium scirpi var. *acuminatum* -- N. and S. Dak. (Secondary)
 Helminthosporium sativum -- Nebr., N. and S. Dak.
 Rhizoctonia solani -- Dickinson, Mandan, N. Dak.; Hecla, S. Dak.
 Seedling blight 5/, cause undet. -- eastern Wash.
 Stem rust, *Puccinia graminis* -- Pullman, Wash.; Mandan, N. Dak.
 Stem smut, *Ustilago hypodytes* -- Pullman, Wash.
 Stripe rust, *Puccinia glumarum*, with parasite, *Darluca filum* -- Pullman, Wash.

AGROPYRON DASYSTACHYUM (Hook.) Scribn.

- Bends, cause undet. -- Pullman, Wash.
 Brown stripe rust, *Puccinia montanensis* -- Pullman, Wash.; central Mont.
 Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Mandan, N. Dak.
 Ergot, *Claviceps purpurea* -- Pullman, Wash.; central Mont.; Mandan, N. Dak.
 Head smut, *Ustilago bullata* -- Pullman, Wash.
 Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash.; central and southern Wash.; Mandan, N. Dak.
 Leaf streak, *Scolecotrichum graminis* -- western Wyo.
 Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.
 Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.
 Secondary rootrot, *Sclerotium* sp. -- Mandan, N. Dak. (Pathogenicity doubtful)
 Seedling blight, cause undet. 5/ -- Pullman, Wash.
 Stem rust, *Puccinia graminis* -- Pullman (with *Darluca filum*), southern Wash.; central Calif.; Mandan, N. Dak.
 Stem smut, *Ustilago hypodytes* -- Pullman, Wash.
 Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

AGROPYRON DESERTORUM (Fisch.) Schult. (P.I. 110302; 113013)

- Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.
 Root necrosis, *Pythium debaryanum* -- Mandan, N. Dak.
 Pythium ultimum -- Mandan, N. Dak.
 Stem rust, *Puccinia graminis* -- Mandan, N. Dak.
 Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

AGROPYRON DIVARICATUM Boiss. & Bal.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

AGROPYRON ELMERI Scribn.

Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash.

Stem rust, *Puccinia graminis* -- Pullman, Wash.

AGROPYRON ELONGATUM (Host) Beauv.

Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.

Rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.
(weak parasite).

Fusarium scirpi var. *compactum* -- Mandan, N. Dak. (weak
parasite).

Helminthosporium sativum -- Mandan, N. Dak.

Rhizoctonia solani -- Mandan, N. Dak.

AGROPYRON FERGANENSE Drobov (P.I. 116254)

Brown stripe rust, *Puccinia montanensis* -- Mandan, N. Dak.

AGROPYRON GRIFFITHSII Scribn. & Smith

Leaf streak, *Scolecotrichum graminis* -- Harney Nat'l For., S. Dak.

Stem rust, *Puccinia graminis* -- Pullman, Wash.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

AGROPYRON HIRSUTUM (Bartol)

Leaf rust, *Puccinia rubigo-vera* (DC.) Wint. -- Mandan, N. Dak.

AGROPYRON INERME (Scribn. & Smith) Rydb.

Bends, cause undet. -- Pullman, Wash.

Brown stripe rust, *Puccinia montanensis* -- Pullman, Wash., and
central Mont.

Ergot, *Claviceps purpurea* -- central Mont., Roundup, Mont.,
Pullman, Wash., northern Ore.

Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash., central and
southern Mont.

Powdery mildew, *Erysiphe graminis* -- Pullman, Wash.

Rust, *Puccinia pattersoniana* -- Oregon, eastern and central Wash.

Seedling blight, cause undet. -- eastern Wash.

Selenophoma sheath speckle, *Selenophoma donacis* var. 6/ -- eastern
Wash.

Stem rust, *Puccinia graminis* -- Pullman, Wash., Mandan, N. Dak.

Stem smut, *Ustilago hypodytes* -- Pullman, Wash.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash., eastern and
central Wash., central Mont., northern Ore.

Stripe smut, *Ustilago striaeformis* -- Pullman, Wash.

6/ Several varieties of *Selenophoma donacis* or possibly distinct species have been recognized in this work and are under investigation at Mandan, N. Dak.

AGROPYRON INTERMEDIUM (Host) Beauv. (U.S.S.R. W. 2327)

Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.
 Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.

AGROPYRON PANORMITAMUM Parl.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

AGROPYRON REPENS (L.) Beauv.

Brown stripe rust, *Puccinia montanensis* -- Quad Creek in southern Mont.

Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* --
 General in Minn., N. Dak., and S. Dak.

Ergot, *Claviceps purpurea* -- N. Dak., S. Dak.

Leaf blotch, *Septoria elymi* -- Wild Rice, Buxton, N. Dak.;
 Laurel, Mont.

Leaf rot, *Wojnowicia graminis* -- Jamestown, N. Dak.

Leaf streak, *Scolecotrichum graminis* -- Buxton, N. Dak.

Root browning, *Pythium arrhenomanes* -- Brocket, Mountain, Park
 River, N. Dak.; Fosston, Minn.

Root necrosis, *Pythium debaryanum* -- Fosston, Minn.

Pythium ultimum -- near Bemidji, Minn.

Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.

Pythium perillum -- near Bemidji, Minn.

Rhizoctonia solani -- Sykeston, N. Dak.

Scald, *Rhynchosporium secalis* -- Fosston, Minn.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- N. Dak.,
 S. Dak., Minn.

Helminthosporium halodes -- Fosston, Minn.

Wojnowicia graminis -- Gardner, N. Dak.

Stripe rust, *Puccinia glumarum* -- central Mont.

Stem smut, *Ustilago hypodytes* -- eastern and central Wash.,
 western Idaho, northeast Ore.

AGROPYRON RIPARIUM Scribn. & Smith (P.E.I. 127957)

Brown stripe rust, *Puccinia montanensis* -- southern Idaho; Mandan,
 N. Dak. (with parasite *Darluca filum*).

Damping-off, *Pythium debaryanum* -- Mandan, N. Dak.

Ergot, *Claviceps purpurea* -- Pullman, Wash.

Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash.; Mandan, N. Dak.

Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* --
 Mandan, N. Dak.

Stem rust, *Puccinia graminis* -- Mandan, N. Dak.

Stem smut, *Ustilago hypodytes* -- Pullman, Wash.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

AGROPYRON SIBIRICUM (Willd.) Beauv. (F.P.I. 113047)

Brown stripe rust, *Puccinia montanensis* -- Mandan, N. Dak.

Ergot, *Claviceps purpurea* -- Mandan, N. Dak.

Leaf rot, *Phytophthora* sp. -- Mandan, N. Dak.

AGROPYRON SIBIRICUM Cont.

- Leaf rust, *Puccinia rubigo-vera* -- Mandan, N. Dak.
- Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.
- Root necrosis, *Pythium debaryanum* -- Mandan, N. Dak.
- Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.
- Rhizoctonia solani* -- Mandan, N. Dak.
- Stem rust, *Puccinia graminis* -- Mandan, N. Dak.

AGROPYRON SMITHII Rydb.

- Brown stripe rust, *Puccinia montanensis* -- Pullman, Wash. (with *Darluca filum*); central Mont.; Mandan, Langdon, N. Dak.
- Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- general in N. Dak.
- Ergot, *Claviceps purpurea* -- Forsythe, central and southern Mont.; Jackson, Wyo.
- Leaf blotch, *Septoria elymi* -- Mandan, N. Dak.
- Leaf rot, *Wojnowicia graminis* -- Lakota, N. Dak.
- Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash.; central Mont. (with *Darluca filum*); Mandan, Langdon, N. Dak.
- Leaf speckle, *Cladosporium herbarum* -- central N. Dak. (common in very early spring on new growth).
- Leaf spot, *Septoria* sp. 7/ (not *elymi*) -- Forsythe, Mont.; western N. Dak.
- Leaf streak, *Scolecotrichum graminis* -- N. Dak.
- Mold, *Wojnowicia graminis* -- Forsythe, Mont.
- Powdery mildew, *Erysiphe graminis* -- central Mont.; central N. Dak.
- Root necrosis, *Pythium debaryanum* -- Dwight, N. Dak.
- Rootrot, *Helminthosporium sativum* -- general east of Rocky Mts.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- general east of Rockies.
- Phoma (terrestris)* -- central N. Dak.
- Rhizoctonia solani* -- scattered in N. Dak., S. Dak.
- Selenophoma* stem speckle, *Selenophoma donacis* var. -- general in N. Dak., S. Dak., Mont. and Wyo.
- Stem rust, *Puccinia graminis* -- Pullman, Wash.; central Mont.; central N. Dak.; Huron, S. Dak.
- Stripe rust, *Puccinia glumarum* -- Pullman, Wash.; central Mont.

AGROPYRON SPICATUM (Pursh) Scribn. & Smith

- Bends, cause undet. -- Pullman, Wash.
- Brown stripe rust, *Puccinia montanensis* -- Pullman, Wash.; central Mont.

7/ A complex of forms on *Agropyron* and *Elymus* which includes *S. infuscans* (Ell. and Ev.) Sprague, *S. elymi-europaei* Jaap and material near *S. nodorum* Berk. is under study at Mandan, N. D.

AGROPYRON SPICATUM Cont.

- Ergot, *Claviceps purpurea* -- Pullman, Wash.; Roundup, central and southern Mont.
- Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash. (with *Darluca filum*) central Wash.; central Mont.; Yellowstone Park, Wyo.
- Leaf streak, *Scolecotrichum graminis* -- Pullman, Wash.; central Mont.
- Powdery mildew, *Erysiphe graminis* -- Pullman, Wash.; northeast Ore.
- Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.
- Rust, *Puccinia pattersoniana* -- southern Wash.; northern Ore.; western Idaho.
- Seedling blight, cause undet. -- eastern Wash.
- Selenophoma stem speckle, *Selenophoma donacis* var. -- Sentinel Butte, N. Dak.
- Stem rust, *Puccinia graminis* -- Pullman, Wash.; Mandan, N. Dak.
- Stem smut, *Ustilago hypodytes* -- Pullman, Wash.
- Stripe rust, *Puccinia glumarum* -- Pullman, east and central Wash.; west Ore.; central Mont.

AGROPYRON SUBSECUNDUM (Link) Hitchc.

- Brown stripe rust, *Puccinia montanensis* -- Pullman, Wash.; central Mont.
- Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Mandan, N. Dak.
- Ergot, *Claviceps purpurea* -- Pullman, Wash.
- Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash.; north Wyo.
- Leaf spot, *Scolecotrichum graminis* -- Pullman, Wash.; north Wyo.
- Leaf tip spot, *Ascochyta agropyrina* -- Mandan, N. Dak.
- Powdery mildew, *Erysiphe graminis* -- North Wyo.
- Rootrot, *Helminthosporium sativum* -- central N. Dak.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- central N. Dak.
- Stem rust, *Puccinia graminis* -- Pullman, Wash.
- Stripe rust, *Puccinia glumarum* -- Pullman, Wash., central Mont., northern Wyo.
- Stripe smut, *Ustilago striaeformis* -- Pullman, Wash.

AGROPYRON TRACHYCAULUM^{8/} (Link) Malte

- Anthrachnose, *Colletotrichum graminicolum* -- Lawton, N. Dak.
- Bends, cause undet. -- Pullman, Wash.; central Mont.
- Brown stripe rust, *Puccinia montanensis* -- Pullman, Wash.; central Mont.; Mandan, Langdon, N. Dak.
- Cat-tail disease, *Epichloë typhina* -- Pullman, Wash.; central Mont.; western N. Dak.
- Char spot, *Septogloeum oxysporum* -- Lawton, Tagus, N. Dak.
- Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Lawton, S. Dak.

^{8/} A. pauciflorum (slender wheatgrass); see Rhodora 36:417. 1934.

AGROPYRON TRACHYCAULUM Cont.

- Ergot, *Claviceps purpurea* -- Pullman, Wash., northern Oreg.;
general in Mont. and N. Dak.
- Flag smut, *Urocystis agropyri* -- northwest Wyo.
- Head smut, *Ustilago bullata* -- Pullman, Wash., northeast Oreg.,
southern Idaho, central Mont.
- Leaf rust, *Puccinia rubigo-vera* (with *Darluca filum*) -- Pullman,
Wash.; Jackson, Wyo.; Tappen, N. Dak.
- Leaf spot, *Ascochyta agropyrina* -- Lawton, N. Dak.
- Selenophoma donacis* var. -- Drummond, Mont.
- Septoria* sp. -- southern Mont., western N. Dak.
- Septoria elymi* -- Langdon, N. Dak.
- Leaf spot and blotch, near *Septoria nodorum* -- Ward Co., and
Lawton, S. Dak.
- Leaf streak, *Scolecotrichum graminis* -- Pullman, Wash.; eastern
and central Mont.; Yellowstone Park, Jackson, Wyo.;
Crookston, Minn.; N. Dak.
- Powdery mildew, *Erysiphe graminis* -- central Mont., northeast
Oreg., eastern Wash., central N. Dak.
- Purple leaf spot, *Stagonospora arenaria* -- Mandan, N. Dak.
- Root browning, *Pythium aristosporum* -- Mandan, N. Dak.
- Pythium arrhenomanes* -- Mandan, N. Dak.
- Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.
- Rhizoctonia solani* -- Mandan, N. Dak.
- Scald, *Rhynchosporium secalis* -- Pullman, Wash.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.
- Stem rust, *Puccinia graminis* -- Pullman, Wash., western N. Dak.
- Stripe rust, *Puccinia glumarum* -- Pullman, Wash., central Mont.,
northern Wyo.
- Stripe smut, *Ustilago striaeformis* -- Pullman, Wash., central Mont.
- Twist disease, *Dilophospora alopecuri* -- northwest Wyo., South
Roosevelt Park, N. Dak.

AGROPYRON TRICHOPHORUM (Link) Richt. (P.I.106,831)(F.P.I.107,327-29)

- Bacterial slime spot, *Aplanobacter agropyri* -- Mandan, N. Dak.
- Brown stripe rust, *Puccinia montanensis* -- Mandan, N. Dak.
- Ergot, *Claviceps purpurea* -- Pullman, Wash.
- Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash.; Mandan, N. Dak.
- Leaf spot, *Ascochyta agropyrina* -- Mandan, N. Dak.
- Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.
- Root necrosis, *Pythium debaryanum* -- Mandan, N. Dak.
- Rootrot, *Rhizoctonia solani* -- Mandan, N. Dak.
- Stem rust, *Puccinia graminis* -- Mandan, N. Dak.
- Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

AGROPYRON UGAMICUM Drobov (F.P.I.110,065).

- Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

AGROSTIS ALBA L.

- Char spot, *Septogloeum oxysporum* -- northwest Wyo.
- Leaf blight, *Sclerotium rhizodes* -- northwest Wyo.
- Leaf streak, *Scolecotrichum graminis* -- Pullman, Wash., northern Idaho, southern Mont., northeast Oreg., northwest Wyo., Mandan, N. Dak.
- Root necrosis, *Pythium debaryanum* -- Mandan, N. Dak.
- Pythium ultimum* -- Mandan, N. Dak.
- Stripe smut, *Ustilago striaeformis* -- Pullman, and general in eastern Wash.; western Oreg.; western Idaho; northwest Wyo.

AGROSTIS CASTELLANA Boiss. & Reut.

- Crown rust, *Puccinia coronata* -- northern Calif., western Oreg.
- Leaf blotch, *Septoria triseti* -- western Oreg.
- Stripe smut, *Ustilago striaeformis* -- Pullman, Wash.

AGROSTIS EXARATA Trin.

- Leaf streak, *Scolecotrichum graminis* -- western Idaho.
- Powdery mildew, *Erysiphe graminis* -- western Idaho, northeast Oreg., eastern Wash.
- Stem rust, *Puccinia graminis* -- western Idaho.

AGROSTIS HALLII Vasey

- Stem rust, *Puccinia graminis* -- northwest Calif.

AGROSTIS PALUSTRIS Huds.

- Stripe smut, *Ustilago striaeformis* -- western Oreg.

AGROSTIS SCABRA Willd.

- Char spot, *Septogloeum oxysporum* -- Cornucopia, Oreg.
- Leaf spot, *Septoria secalis* var. *stipae* -- Ft. Totten, N. Dak.
- Selenophoma speckle, *Selenophoma donacis* var. -- Ft. Totten, N. Dak.

AGROSTIS STOLONIFERA L.

- Stripe smut, *Ustilago striaeformis* -- Pullman, Wash.

AGROSTIS TENUIS Sibth.

- Crown rust, *Puccinia coronata* -- western Oreg.
- Leaf blotch, *Septoria triseti* -- western Oreg.
- Stem rust, *Puccinia graminis* -- western Oreg.

ALOPECURUS AEQUALIS Sobol.

- Leaf streak, *Scolecotrichum graminis* -- northeast Oreg.

ALOPECURUS ARUNDINACEUS Poir.

- Stem rust, *Puccinia graminis* -- Tucson, Ariz.

ALOPECURUS PRATENSIS L.

- Ergot, *Claviceps purpurea* -- central Mont. and Corvallis, Oreg.
- Leaf streak, *Scolecotrichum graminis* -- Mandan, N. Dak.
- Scald, *Rhynchosporium orthosporum* -- Corvallis, Granger, Oreg.

AMMOPHILA ARENARIA (L.) Link.

Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.

Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.

ANDRPOGON FURCATUS Muhl.

Leaf spot, *Ascochyta* sp. -- Mandan, N. Dak.

Phyllosticta sp. -- Mandan, N. Dak.

Root browning, *Pythium arrhenomanes* -- McCanna, Mandan, N. Dak.

Root necrosis and Damping-off, *Pythium debaryanum* -- Albion, Nebr.; Mandan, N. Dak.

Pythium ultimum -- Albion, Nebr.

Rootrot, *Fusarium scirpi* var. *acuminatum* -- Albion, Nebr.

Stomatal drowning, cause, excess rain plus *Bacterium* sp. -- Mandan, N. Dak.

ANDROPOGON HALLII Hack.

Damping-off, *Pythium debaryanum* -- Mandan, McCanna, N. Dak.

Rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

Helminthosporium sativum -- Mandan, N. Dak.

Stomatal drowning, cause, excess rain plus *Bacterium* sp. -- Mandan, N. Dak.

ANDROPOGON SCOPARIUS Michx.

Root necrosis and Damping-off, *Pythium debaryanum* -- Mandan, N. Dak.

Rust, *Puccinia ellisiana* -- Mandan, N. Dak.

Stomatal drowning, cause, excess rain plus *Bacterium* sp. -- Mandan, N. Dak.

ARISTIDA LONGISETA Steud.

Kernel smut, *Sorosporium consanguineum* -- western Idaho.

Rust, *Puccinia aristidae* -- western Idaho.

Selenophoma stem speckle, *Selenophoma donacis* var. -- extreme western N. Dak.

ARRHENATHERUM ELATIUS (L.) Mert. & Koch.

Ergot, *Claviceps purpurea* -- central Mont. and Corvallis, Oreg.

Leaf spot and stem speckle, *Selenophoma donacis* var. -- Bozeman, Mont.

Leaf streak, *Scolecotrichum graminis* -- Pullman, Wash.; central Mont.; western Oreg.

Loose smut, *Ustilago avenae* -- Pullman, Wash.; south Idaho.

Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.

Root necrosis, *Pythium debaryanum* -- Mandan, N. Dak.

Rootrot (charcoal rot) *Macrophomina phaseoli* -- Mandan, N. Dak.

AVENA FATUA L.

Anthraxnose, *Colletotrichum graminicolum* -- Grand Forks, N. Dak.

Crown rust, *Puccinia coronata* -- southern, central and northwest Calif.; east Wash.

Leaf spot, *Ascochyta avenae* & associated ascomycete -- Pullman, Wash.

AVENA FATUA L. Cont.

- Root browning, *Pythium arrhenomanes* -- Mandan, McCanna, Taft, N. Dak.
- Rootrot, *Helminthosporium sativum* -- McCanna, N. Dak.
- Stem rust, *Puccinia graminis avenae* -- south, central and northeast Calif.; eastern Wash.; eastern and northeast N. Dak. (*Darluca filum* near Taft, N. Dak.)

AVENA HOOKERI Scribn.

- Anthracnose, *Colletotrichum graminicolum* -- McHenry Co., N. Dak.
- Crown rust, *Puccinia coronata* -- Quad Creek in southern Mont.

BECKMANNIA SYZIGACHNE (Steud.) Fernald

- Crown rust, *Puccinia coronata* -- central Calif.
- Leaf streak, *Scolecotrichum graminis* -- Ward Co., N. Dak.

BOUTELOUA CURTIPENDULA (Michx.) Torr.

- Damping-off, *Pythium debaryanum* -- Mandan, N. Dak.
- Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.
- Rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.
- Helminthosporium sativum* -- Mandan, N. Dak.
- Rhizoctonia solani* -- Mandan, N. Dak.
- Rust, *Puccinia vexans* (with *Darluca filum*) -- Dickinson, Mandan, N. Dak.
- Selenophoma stem speckle and leaf spot; *Selenophoma donacis* var. -- near Beach, N. Dak.

BOUTELOUA GRACILIS (H. B. K.) Lag.

- Damping-off, *Pythium debaryanum* -- Mandan, N. Dak., Grassy Butte, McCanna, N. Dak.
- Root browning, *Pythium arrhenomanes* -- Mandan, McCanna, N. Dak.
- Rootrot, *Curvularia geniculata* -- Yates, Mont.; western N. Dak.
- Fusarium poae* -- Mandan, N. Dak.
- Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.
- Fusarium sporotrichoides* -- Albion, Nebr.
- Helminthosporium sativum* -- Coburn, Mandan, N. Dak.
- Rhizoctonia solani* -- McCanna, Mandan, N. Dak.
- Rust, *Puccinia bartholomaei* -- Coburn, N. Dak.

BRACHYPODIUM SYLVATICUM (Huds.) Beauv. (P.I.113,027).

- Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Mandan, N. Dak.
- Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.
- Secondary rootrot, *Curvularia geniculata* -- Mandan, N. Dak.
- Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.
- Macrophomina phaseoli* -- Mandan, N. Dak.

BROMUS ANOMALUS Rupr.

- Head smut, *Ustilago bullata* -- Pullman, Wash.
- Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

BROMUS ARVENSIS L. (Denmark F.C.13,674).

Root necrosis, *Pythium debaryanum* -- Mandan, N. Dak.

BROMUS CARINATUS Hook. & Arn.

Ergot, *Claviceps purpurea* -- western Idaho, central Mont.

Head smut, *Ustilago bullata* -- eastern Wash., Pullman, Wash.; western and southern Idaho; central Mont.; northern Wyo.; northern Utah.

Leaf rust, *Puccinia rubigo-vera* -- general from Idaho westward; and Calif.

Leaf streak, *Scolecotrichum graminis* -- western Idaho, central Mont., Jackson, Wyo.

Powdery mildew, *Erysiphe graminis* -- Pullman, Wash.; west Idaho; Cooke City, Mont.

Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.

Rhizoctonia solani -- Mandan, N. Dak.

Scald, *Rhynchosporium secalis* -- Pullman, Wash.

Stem rust, *Puccinia graminis* -- Pullman, Wash.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.; central Mont.; northeast Oreg.; eastern Wash.; northern Wyo.

BROMUS CATHARTICUS Vahl.

Head smut, *Ustilago bullata* -- western Oreg.

Leaf streak, *Scolecotrichum graminis* -- eastern Wash.

BROMUS CILIATUS L.

Ergot, *Claviceps purpurea* -- central Mont.

Head smut, *Ustilago bullata* -- central Mont.

Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash. and northeast Oreg.

Stem rust, *Puccinia graminis* -- central Calif.

Stripe rust, *Puccinia glumarum* -- central Mont.

BROMUS ERECTUS Huds.

Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- eastern Wash.; central Mont.

Ergot, *Claviceps purpurea* -- central Mont.

Head smut, *Ustilago bullata* -- central and eastern Wash.; south Idaho.

Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

BROMUS INERMIS Leyss.

Bends, cause undet. -- Pullman, Wash.; central Mont.

Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Pullman, Wash.; general in N. Dak., S. Dak., Minn., Nebr.

Ergot, *Claviceps purpurea* -- N. Dak., and S. Dak.

Leaf spot, *Ascochyta graminicola* var. *diedickeana* -- McCanna, N. Dak.; Laporte, Minn.

Selenophoma bromigena -- Pullman, Wash. and almost universal east of the Rockies except in the drier areas.

BROMUS INERMIS Cont.

- Root browning, *Pythium arrhenomanes* -- common and destructive from Minn. to the Rockies.
- Root necrosis, *Pythium debaryanum* -- scattered in N. Dak., S. Dak., Minn. and Nebr.
- Pythium irregulare* -- Mandan, N. Dak.
- Pythium* (?) *proliferum* (*irregulare*) -- Lincoln, Nebr.
- Pythium ultimum* -- Lincoln, Nebr.
- Rootrot, *Helminthosporium sativum* -- common in N. Dak., S. Dak., Mont. and in Nebr.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- N. Dak., S. Dak., Mont.
- Helminthosporium* sp. -- rarely isolated in N. Dak.
- Sclerotium* sp. -- central N. Dak.
- Rhizoctonia solani* -- N. Dak.; S. Dak.
- Scald, *Rhynchosporium secalis* -- Pullman, Wash.

BROMUS JAPONICUS Thurb.

- Head smut, *Ustilago bullata* -- eastern Wash.
- Leaf spot, *Septoria bromi* -- eastern Wash.
- Secondary rootrot, *Fusarium scirpi* *acuminatum* -- Highmore, S. Dak.

BROMUS LAEVIPIES Shear

- Leaf rust, *Puccinia rubigo-vera* -- central and north Calif.

BROMUS LANUGINOSUS Poir.

- Leaf rust, *Puccinia rubigo-vera* -- central Calif.

BROMUS MARGINATUS Nees

- Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Pullman, Wash.
- Ergot, *Claviceps purpurea* -- Pullman, Wash., northern Idaho.
- Head smut, *Ustilago bullata* -- Pullman, Wash.; southern Idaho; western Oreg.
- Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash. (with parasite *Darluca filum*); central Calif.
- Leaf streak, *Scolecotrichum graminis* -- eastern Wash.
- Powdery mildew, *Erysiphe graminis* -- Pullman, Wash., western Mont.
- Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.
- Scald, *Rhynchosporium secalis* -- Pullman, Wash.
- Stem rust, *Puccinia graminis* -- Pullman, Wash.
- Stripe rust, *Puccinia glumarum* -- central Calif., central Oreg.

BROMUS MADRITENSIS L.

- Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.

BROMUS MOLLIS L.

- Bunt, *Tilletia guyotiana* -- northern Idaho, eastern Wash.
- Head smut, *Ustilago bullata* -- central and northern Calif., northern Utah, southern Wash.
- Leaf rust, *Puccinia rubigo-vera* -- central Calif.

BROMUS POLYANTHUS Scribn.

- Head smut, *Ustilago bullata* -- southern Idaho.
- Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash., central Calif.
- Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

BROMUS PURGANS L.

- Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

BROMUS RACEMOSUS L.

- Bunt, *Tilletia guyotiana* -- southern Wash.
- Head smut, *Ustilago bullata* -- southern Wash.

BROMUS RIGIDUS Roth.

- Head smut, *Ustilago bullata* -- southern Wash.
- Leaf rust, *Puccinia rubigo-vera* -- southern and central Calif., southern Wash.
- Stem rust, *Puccinia graminis* -- central Calif.

BROMUS EURENS L.

- Head smut, *Ustilago bullata* -- central Calif.
- Leaf rust, *Puccinia rubigo-vera* -- central Calif.
- Stem rust, *Puccinia graminis* -- central Calif.

BROMUS SECALINUS L.

- Head smut, *Ustilago bullata* -- western Oreg.
- Leaf spot, *Septoria bromi* -- northwest Idaho.

BROMUS SIBIRICUS Drobov (P.I. 111531).

- Head smut, *Ustilago bullata* -- Pullman, Wash.
- Leaf rust, *Puccinia rubigo-vera* -- central Calif.
- Stem rust, *Puccinia graminis* -- central Calif.

BROMUS TECTORUM L.

- Head smut, *Ustilago bullata* -- general west of Rockies.
- Leaf rust, *Puccinia rubigo-vera* -- eastern Wash., central Calif.
- Powdery mildew, *Erysiphe graminis* -- Lincoln, Nebr.
- Root necrosis, *Pythium irregulare* -- Lincoln, Nebr.
- Pythium proliferum* -- Lincoln, Nebr.
- Rootrot, *Helminthosporium sativum* -- Park River, N. Dak.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Kildeer Mts., N. Dak.
- Stem rust, *Puccinia graminis* -- central Calif.

BROMUS TOMENTELLUS Boiss. (P.I. 111530).

- Head smut, *Ustilago bullata* -- Pullman, Wash.
- Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

BROMUS VULGARIS (Hook.) Shear

- Head smut, *Ustilago bullata* -- Pullman, Wash.

BROMUS VULGARIS Cont.

Leaf rot, *Hendersonia* sp. -- Lake Itasca, Minn.

Leaf streak, *Scolecotrichum graminis* -- northern Idaho.

BUCHLOË DACTYLOIDES (Nutt.) Engelm.

Cercospora seed blight, *Cercospora seminalis* -- Mandan, N. Dak.

Leaf rot, *Ascochyta* phase of *Hendersonia* sp. -- Fargo, N. Dak.

Helminthosporium inconspicuum var. *buchloës* -- Nebr., Mont., N. Dak.

Rootrot, *Curvularia geniculata* -- Albion, Nebr.

Fusarium scirpi var. *acuminatum* -- Albion, Nebr.

Rhizoctonia solani -- Albion, Nebr.

Rust, *Puccinia kansensis* -- SCS nursery, North Platte, Nebr.

CALAMAGROSTIS CANADENSIS (Michx.) Beauv.

Anthracnose, *Colletotrichum graminicolum* -- Bismarck, Langdon, N. Dak.; Townsend, Mont.

Crown rust, *Puccinia coronata* -- Townsend, Mont.

Leaf rot, *Hendersonia calamovilfae* -- western S. Dak..

Leaf streak, *Scolecotrichum graminis* -- Langdon, N. Dak.

Red eye-spot, *Mastigosporium rubricosum* -- Yellowstone Park, Wyo.

Scald, *Rhynchosporium orthosporum* -- Yellowstone Park, Wyo.

CALAMAGROSTIS INEXPANSA A. Gray

Anthracnose, *Colletotrichum graminicolum* -- Lawton, N. Dak.

Ergot, *Claviceps purpurea* -- Lawton, N. Dak.

CALAMAGROSTIS RUBESCENS Buckl.

Anthracnose, *Colletotrichum graminicolum* -- Cornucopia, Oreg.

CALAMAGROSTIS SCRIBNERI Beal

Crown rust, *Puccinia coronata* -- Jackson L. For. Camp, Wyo.

Leaf spot, *Selenophoma donacis* var. -- Jackson Lake, Wyo.

CALAMOVILFA GIGANTEA (Nutt.) Scribn. and Merr.

Leaf spot, *Hendersonia calamovilfae* -- Pullman, Wash.

CALAMOVILFA LONGIFOLIA (Hook.) Scribn.

Leaf mold, *Cladosporium herbarum* -- Coburn, N. Dak.

Leaf rot and spot, *Hendersonia calamovilfae* -- Coburn, N. Dak.

Leaf spot, *Septoria calamovilfae* -- Wilton, N. Dak.

Selenophoma donacis -- Mandan, N. Dak., and vicinity.

Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.

Rust, *Puccinia amphigena* -- Wibaux, Mont., central N. Dak.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

CHLORIS VIRGATA Swartz

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

CINNA LATIFOLIA (Trevir.) Griseb.

Leaf spot, *Stagonospora arenaria* -- Cornucopia, Oreg.; Tamarac Game Sanctuary, Minn.

Stem rust, *Puccinia graminis* -- Cornucopia, Oreg.

CYNODON DACTYLON (L.) Pers.

Rust, *Puccinia cynodontis* -- southern Calif.

DACTYLIS GLOMERATA L.

Bends, cause undet. -- Pullman, Wash., central Mont.

Ergot, *Claviceps purpurea* -- Corvallis, Oreg.

Leaf streak, *Scolecotrichum graminis* -- Pullman, Wash., eastern Wash., western Oreg.

Mold, *Wojnowicia graminis* -- Mandan, N. Dak.

Powdery mildew, *Erysiphe graminis* -- southern Mont., eastern Wash.

Purple spot, *Mastigosporium rubricosum* -- Corvallis, Oreg.

Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

Selenophoma stem speckle, *Selenophoma donacis* var. -- Pullman, Wash.

Stem rust, *Puccinia graminis* -- eastern Wash. and Bard, Calif.

DANTHONIA CALIFORNICA Boland.

Bends, cause undet. -- western Idaho.

Loose smut, *Ustilago residua* -- central Calif.

DANTHONIA CALIFORNICA var. AMERICANA (Scribn.) Hitchc.

Bends, cause undet. -- western Idaho.

DANTHONIA UNISPICATA (Thurb.) Munro

Bends, cause undet. -- Pullman, Wash.

DESCHAMPSIA ATROPURPUREA (Wahl.) Scheele

Selenophoma stem speckle, *Selenophoma donacis* var. -- Beartooth Pass in Mont.

DESCHAMPSIA CAESPITOSA (L.) Beauv.

Crown rust, *Puccinia coronata* -- western Oreg.

Ergot, *Claviceps purpurea* -- northeast Oreg.

Leaf blast, *Cercospora subulata* -- Beartooth Pass, Wyo.

Stem rust, *Puccinia graminis* -- Pullman, Wash.

Selenophoma stem speckle, *Selenophoma donacis* var. -- Beartooth Pass in Wyo.

DESCHAMPSIA DANTHONIOIDES (Trin.) Munro

Bunt, *Tilletia airae* -- eastern Wash.

Stem rust, *Puccinia graminis* -- eastern Wash.

DESCHAMPSIA ELONGATA (Hook.) Munro

Bunt, *Tilletia airae* -- northwest Idaho, northwest Oreg.

DESCHAMPSIA ELONGATA Cont.

- Leaf streak, *Scolecotrichum graminis* -- western Wash.
- Rust, *Uromyces jacksonii* -- northern Idaho.
- Selenophoma stem speckle, *Selenophoma donacis* var. -- eastern Wash., Pullman, Wash.
- Stem rust, *Puccinia graminis* -- central Calif., northwest Idaho.

DIGITARIA SANGUINALIS (L.) Scop.

- Anthracnose, *Colletotrichum graminicolum* -- Mandan, N. Dak.
- Leaf rot, *Curvularia geniculata* -- Mandan, N. Dak.
- Curvularia trifolii* -- Mandan, N. Dak.
- Mold, *Helminthosporium sativum* -- Mandan, N. Dak.
- Secondary mold and rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

DISTICHLIS SPICATA (L.) Greene

- Char spot, *Dothidella aristidae* -- northern Calif.

DISTICHLIS STRICTA (Torr.) Rydb.

- Char spot, *Dothidella aristidae* -- northeast Oreg., northern Utah, central and eastern Wash., N. Dak., S. Dak.
- Rust, *Puccinia aristidae* -- general from central Calif. to eastern N. Dak. and S. Dak.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- northern, central N. Dak.
- Wojnowicia graminis* -- Niagara, N. Dak.
- Tar spot, *Phyllachora* sp. -- western N. Dak.

ECHINOCHLOA CRUSGALLI (L.) Beauv.

- Root browning, *Pythium aristosporum* -- Dickinson, N. Dak.
- Pythium arrhenomanes* -- Dwight, Dickinson, N. Dak.
- Root necrosis, *Pythium debaryanum* -- Langdon, N. Dak.
- Rootrot, *Fusarium culmorum* -- Dickinson, N. Dak.
- Helminthosporium sativum* -- Fairmont, N. Dak.
- Secondary rootrot, *Curvularia geniculata* -- Mandan, N. Dak.
- Curvularia trifolii* -- Mandan, N. Dak.
- Fusarium scirpi* var. *acuminatum* -- Dickinson, Mandan, N. Dak.
- Rhizoctonia solani* -- Mandan, N. Dak.

ELYMUS AMBIGUUS Vasey & Scribn.

- Ergot, *Claviceps purpurea* -- western Mont.

ELYMUS ANTARCTICUS Hook. f.

- Bends, cause undet. -- Pullman, Wash.
- Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

ELYMUS ARENARIUS L.

- Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

ELYMUS CANADENSIS L.

- Bends, cause undet. -- Pullman, Wash.
- Brown stripe rust, *Puccinia montanensis* -- Pullman, Wash., southern Idaho, central Mont., Mandan, N. Dak.
- Brown stripe smut, *Tilletia* sp. -- southern Mont.
- Cat-tail disease, *Epichloë typhina* -- Pullman, Wash.
- Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- central N. Dak.
- Head smut, *Ustilago bullata* -- eastern Wash.
- Leaf blotch, *Septoria elymi* -- Coburn, N. Dak.
- Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash., southern Mont., western and central N. Dak. (with *Darluca filum*).
- Leaf spot, *Ascochyta agropyrina* -- Mandan, N. Dak.
- Ascochyta elymi* -- Solen, N. Dak.
- Septoria* sp. -- Leonard, N. Dak.
- Leaf streak, *Scolecotrichum graminis* -- Pullman, Wash., central Mont., northern Utah, central and northcentral N. Dak.
- Powdery mildew, *Erysiphe graminis* -- western and central Mont.
- Rootrot, *Helminthosporium sativum* -- Dickinson, Mandan, N. Dak.
- Scald, *Rhynchosporium secalis* -- Pullman, Wash.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, Zap, N. Dak.
- Rhizoctonia solani* -- McCanna, Mandan, N. Dak.
- Stem rust, *Puccinia graminis* -- Pullman, Wash., Mandan, N. Dak.
- Stem smut, *Ustilago hypodytes* -- Pullman, Wash.
- Stripe rust, *Puccinia glumarum* -- Pullman, Wash., central Mont.
- Stripe smut, *Ustilago macrospora* -- Pullman, Wash., southern Mont.
- Ustilago striseiformis* -- Pullman, Wash.

ELYMUS CANADENSIS var. ROBUSTUS (Scribn. & Smith) McKenzie & Bush

- Brown stripe rust, *Puccinia montanensis* (with parasite *Darluca filum*) -- Mandan, N. Dak.

ELYMUS CONDENSATUS Presl

- Bends, cause undet. -- Pullman, Wash.
- Brown stripe rust, *Puccinia montanensis* -- central Wash., Mandan, N. Dak.
- Char spot, *Septogloeum oxysporum* -- eastern Wash., western Wyo., central and western Mont.
- Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- central Calif., eastern Wash.
- Ergot, *Claviceps purpurea* -- Pullman, Wash., central Wash., central and western Mont., northeast Oreg., Jackson, Wyo.
- Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash., and general in eastern and central Wash., northeast Oreg., central Calif., Mandan, N. Dak., Drummond, Mont.
- Leaf spot, *Heterosporium avenae* -- Pullman, Wash.
- Selenophoma donacis* -- central Wash., Mandan, N. Dak., Livingston, Mont.
- Septoria pacifica* -- northwest Calif.

ELYMUS CONDENSATUS Cont.

- Leaf spot, *Septoria* sp. -- western and central Mont., Jackson, Wyo.
- Septoria infusans* -- central Wash.
- Leaf streak, *Scolecotrichum graminis* -- Pullman, Wash., western and central Mont.
- Powdery mildew, *Erysiphe graminis* -- northeast Oreg., Jackson, Wyo.
- Stem rust, *Puccinia graminis* -- Pullman, Wash., central Calif., Mandan (with associated *Bacterium* and *Darluca filum*) N. Dak.
- Stem smut, *Ustilago hypodytes* -- Pullman, Wash.
- Stripe rust, *Puccinia glumarum* -- Pullman, eastern and central Wash., central Calif., central Mont., northern Oreg.
- Stripe smut, *Ustilago macrospora* -- central Mont.

ELYMUS CONDENSATUS var. PUBENS Piper

- Leaf rust, *Puccinia rubigo-vera* -- central Calif.
- Leaf spot, *Septoria* sp. -- central Calif.
- Stem rust, *Puccinia graminis* -- central Calif.
- Stripe rust, *Puccinia glumarum* -- central Calif.

ELYMUS DAHURICUS Turcz. (P.I. 113124).

- Cat-tail disease, *Epichloë typhina* -- Pullman, Wash.
- Ergot, *Claviceps purpurea* -- Pullman, Wash.
- Rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.
- Helminthosporium sativum* -- Mandan, N. Dak.
- Stem rust, *Puccinia graminis* -- Pullman, Wash.; Mandan, N. Dak.
- Stem smut, *Ustilago hypodytes* -- Pullman, Wash.

ELYMUS DASYSTACHYS Trin. (F.P.I. 113109).

- Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- central N. Dak.
- Secondary rootrot, *Macrophomina phaseoli* -- Mandan, N. Dak.
- Stem smut, *Ustilago hypodytes* -- Pullman, Wash.

ELYMUS EXCELSUS Turcz.

- Bends, cause undet. -- Pullman, Wash.
- Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Mandan, N. Dak.
- Covered smut, *Ustilago hordei* -- Pullman, Wash.
- Ergot, *Claviceps purpurea* -- Pullman, Wash.
- Leaf rot, *Ascochyta agropyrina* -- Mandan, N. Dak., Pullman, Wash.
- Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash.
- Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.
- Stem rust, *Puccinia graminis* -- Mandan, N. Dak.
- Stem smut, *Ustilago hypodytes* -- Pullman, Wash.
- Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

ELYMUS FLAVESCENS Scribn. & Smith

- Leaf rust, *Puccinia rubigo-vera* -- central Wash.
- Leaf spot, *Selenophoma donacis* -- central Wash.
- Leaf streak, *Scolecotrichum graminis* -- Centennial Valley, Mont.

ELYMUS GIGANTEUS Vahl (P.I. 108339).

Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Mandan, N. Dak.

Ergot, *Claviceps purpurea* -- southern Wash.

Leaf and sheath spot, *Selenophoma donacis* var. -- Pullman, Wash.

ELYMUS GLAUCUS Buckl.

Bends, cause undet. -- Pullman, Wash.

Brown stripe rust, *Puccinia montanensis* -- Pullman, Wash., Mandan, N. Dak.

Bunt, *Tilletia elymi* -- northeast Oreg.

Covered smut, *Ustilago hordei* -- Pullman, Wash.

Ergot, *Claviceps purpurea* -- Pullman, Wash., northeast Oreg., Mandan, N. Dak.

Head smut, *Ustilago bullata* -- Pullman, Wash.

Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash. (with parasite *Darluca filum*); central Calif., northern Oreg., southern Wash.

Leaf spot, *Selenophoma donacis* var. -- Pullman, Wash.

Leaf streak, *Scolecotrichum graminis* -- Pullman, Wash.; central Calif.

Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

Seedling blight, cause undet. -- eastern Wash.

Stem rust, *Puccinia graminis* -- Pullman, Wash.; central Calif.

Stem smut, *Ustilago hypodytes* -- Pullman, Wash.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.; central Calif.; northeast Oreg.

Stripe smut, *Ustilago striaeformis* -- Pullman, Wash.; northeast Oreg.

ELYMUS INTERRUPTUS Buckl.

Brown stripe rust, *Puccinia montanensis* -- Mandan, N. Dak.

Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Mandan, N. Dak.

Leaf rust, *Puccinia rubigo-vera* -- Mandan (also associated with *Bacterium* sp.), N. Dak.

Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.

Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

Stem rust, *Puccinia graminis* -- Mandan, N. Dak.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

ELYMUS JUNCTUS Fisch.

Bends, cause undet. -- central Mont.

Ergot, *Claviceps purpurea* -- central Mont.; Mandan, N. Dak. (in conidial form only).

Glume blotch, *Sectoria nodorum* -- Langdon, N. Dak.

Grease spot, cause undet. -- Mandan, N. Dak.

Head smut, *Ustilago bullata* -- Pullman, Wash.; central Mont.; Mandan (from Pullman seed), N. Dak.

Joint disease, *Bacterium* sp. -- Mandan, N. Dak.

Leaf rust, *Puccinia rubigo-vera* -- western Calif.; Mandan, N. Dak. (*Bacterium* sp. and *Darluca filum* associated).

ELYMUS JUNCEUS Cont.

- Powdery mildew, *Erysiphe graminis* -- central Mont., Mandan, N. Dak.
- Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.
- Root necrosis, *Pythium debaryanum* -- Mandan, N. Dak.
- Pythium irregulare* -- Mandan, N. Dak.
- Rootrot, *Helminthosporium sativum* -- Langdon, N. Dak.
- Secondary rootrot, *Curvularia geniculata* -- Mandan, N. Dak.
- Fusarium scirpi* var. *acuminatum* -- Mandan, Dickinson, N. Dak.
- Rhizoctonia solani* -- Mandan, N. Dak.
- Selenophoma stem speckle, *Selenophoma donacis* var. -- Mandan, Langdon, N. Dak.
- Stem rust, *Puccinia graminis* -- Pullman, Wash., central Mont., Mandan, N. Dak. (*Bacterium* associated), central S. Dak.

ELYMUS MACCUNII Vasey

- Brown stripe rust, *Puccinia montanensis* -- Mandan, N. Dak.
- Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Mandan, N. Dak.
- Ergot, *Claviceps purpurea* -- western and southern Mont., central N. Dak.
- Leaf spot, *Ascochyta graminicola* - Townsend, Mont.
- Ascochyta graminicola* var. *brachypodii* -- Mandan, N. Dak.
- Septoria* sp. (not *elymi*) -- Ft. Totten, N. Dak.
- Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash., Mandan, N. Dak.
- Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.
- Root necrosis, *Pythium debaryanum* -- Mandan, N. Dak.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.
- Stem rust, *Puccinia graminis* -- Pullman, Wash., Mandan, N. Dak.

ELYMUS PSEUDOAGROPYRON (Grisob.) Trin. (P.I. 135580).

- Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Mandan, N. Dak.

ELYMUS SABULOSUS Bieb. (A 74 from Pima, Ariz. S.C.S. 1933).

- Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Mandan, N. Dak.
- Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

ELYMUS SALINA Jones

- Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash.
- Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

ELYMUS SALSUGINOSUS Turcz. (P.I. 111554).

- Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Mandan, N. Dak.
- Ergot, *Claviceps purpurea* -- Mandan, N. Dak.

ELYMUS SIBIRICUS L. (P.I. 131578).

- Brown stripe rust, *Puccinia montanensis* -- Mandan, N. Dak.
- Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Mandan, N. Dak.

ELYMUS SIBIRICUS Cont.

- Head smut, *Ustilago bullata* -- southern Idaho.
- Leaf rust, *Puccinia rubigo-vera* -- western Oreg., Mandan, N. Dak.
- Leaf streak, *Scolecotrichum graminis* -- Pullman, Wash.
- Powdery mildew, *Erysiphe graminis* -- Mandan, N. Dak.
- Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.
- Stem rust, *Puccinia graminis* -- Pullman, Wash., Mandan, N. Dak.
- Stem smut, *Ustilago hypodytes* -- Pullman, Wash.
- Stripe rust, *Puccinia glumarum* (with parasite *Darluca filum*), Pullman, Wash.

ELYMUS TRITICOIDES Buckl.

- Char spot, *Septogloeum oxysporum* -- northern Calif.
- Ergot, *Claviceps purpurea* -- Pullman, Wash., northern Calif.
- Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash., southern Calif., western Calif., western Oreg.
- Leaf spot, *Septoria elymi-europaei* -- northern Calif.
- Stagonospora arenaria* -- northern Calif.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.
- Stem rust, *Puccinia graminis* -- Mandan (with *Darluca filum*), N. Dak., northern Calif.
- Stripe rust, *Puccinia glumarum* -- Pullman, Wash., western Oreg.

ELYMUS VIRESCENS Piper

- Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

ELYMUS VIRGINICUS L.

- Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Bozeman, Mont., Mandan, N. Dak.
- Leaf spot, *Ascochyta agropyrina* -- Mandan, N. Dak.
- Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash.
- Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

ERAGROSTIS CURVULA (Schrud.) Nees. (Pima, Ariz. D.G.-69-37).

- Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.
- Rhizoctonia solani* -- Mandan, N. Dak.

ERAGROSTIS PILOSA (L.) Beauv.

- Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

FESTUCA CALIFORNICA Vasey

- Stem rust, *Puccinia graminis* -- western Calif.

FESTUCA DERTONENSIS (All.) Aschers. & Graebn.

- Bunt, *Tilletia fusca* -- eastern Wash.
- Smut, *Ustilago mulfordiana* -- eastern Wash.

FESTUCA ELATIOR L.

- Bends, cause undet. -- Pullman, Wash.
- Crown rust, *Puccinia coronata* -- western Calif.
- Damping-off, *Pythium debaryanum* -- Mandan, N. Dak.
- Pythium irregulare* -- Mandan, N. Dak.
- Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.
- Rootrot, ? *Aphanomyces* sp. -- Mandan, N. Dak.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.
- Stem rust, *Puccinia graminis* -- Pullman, Wash., central Mont., northeast and western Oreg.

FESTUCA ELATIOR var. ARUNDINACEA (Schreb.) Wimm.

- Bends, cause undet. -- Pullman, Wash.
- Damping-off, *Pythium debaryanum* -- Mandan, N. Dak.
- Ergot, *Claviceps purpurea* -- Corvallis, Ore.
- Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.
- Stem rust, *Puccinia graminis* -- Pullman, Wash.

FESTUCA IDAHOENSIS Elmer

- Bends, cause undet. -- Pullman, Wash., northern Wyo.
- Ergot, *Claviceps purpurea* -- northern Idaho.
- Leaf rust, *Puccinia crandallii* -- Pullman (with parasite *Darluca filum*), northern Idaho.
- Leaf spot, *Septoria tenella* -- Yellowstone, Park, Wyo.
- Powdery mildew, *Erysiphe graminis* -- Pullman, Wash.
- Selenophoma spot, *Selenophoma donacis* var. -- Lyle, Wash.
- Stem rust, *Puccinia graminis* -- Pullman, Wash.

FESTUCA MEGALURA Nutt.

- Stem rust, *Puccinia graminis* -- central Calif.

FESTUCA OCTOFLORA Walt.

- Bunt, *Tilletia fusca* -- central and eastern Wash.
- Leaf spot, *Septoria tenella* -- Killedeer Mts. and area, N. Dak.
- Rootrot, *Helminthosporium sativum* -- western N. Dak.
- Secondary rootrot, *Rhizoctonia solani* -- western N. Dak.
- Smut, *Ustilago mulfordiana* -- central Mont., central, eastern and southern Wash.

FESTUCA OVINA L.

- Bends, cause undet. -- Pullman, Wash.
- Leaf rust, *Puccinia crandallii* -- Pullman, Wash., Jackson L., Wyo.
- Leaf spot, *Selenophoma donacis* -- southern Wash.
- Septoria tenella* -- Yellowstone Park, Wyo.
- Powdery mildew, *Erysiphe graminis* -- Pullman, Wash.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

FESTUCA OVINA var. BRACHYPHYLLA (Schult.) Piper

- Selenophoma stem speckle, *Selenophoma donacis* var. -- Beartooth Pass in Wyo.

FESTUCA PACIFICA Piper

Bends, cause undet. -- central Wash.

Bunt, *Tilletia fusca* -- central and eastern Wash.

Smut, *Ustilago mulfordiana* -- central, eastern and southern Wash.

FESTUCA RUBRA L.

Ergot, *Claviceps purpurea* -- Pullman, Wash. and Corvallis, Oreg.

Leaf rust, *Puccinia crandallii* (with parasite *Darluca filum*) -- Pullman, Wash., western Oreg.

Leaf spot, *Ascochyta graminicola* -- Mandan, N. Dak.

Secondary rootrot, ? *Aphanomyces* sp. -- Mandan, N. Dak.

Fusarium scirpi var. *acuminatum* -- Mandan, N. Dak.

Rhizoctonia solani -- Mandan, N. Dak.

Selenophoma stem speckle, *Selenophoma donacis* var. -- Beartooth Pass in Mont.

Stem rust, *Puccinia graminis* -- Pullman, Wash., central Calif.

Tar spot, *Phyllachora sylvatica* -- western Oreg.

FESTUCA RUBRA var. COMMUTATA Gaud.

Damping-off, *Pythium debaryanum* -- Mandan, N. Dak.

Ergot, *Claviceps purpurea* -- Pullman, Wash.

Leaf spot, *Septoria tenella* -- western Oreg.

Powdery mildew, *Erysiphe graminis* -- western Oreg.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

Rhizoctonia solani -- Mandan, N. Dak.

FESTUCA RUBRA var. LANUGINOSA Mert. & Koch

Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- Pullman, Wash.

FESTUCA SCABRELLA Torr.

Leaf rust, *Puccinia cockerelliana* -- Pullman, Wash.

FESTUCA SUBULATA Trin.

Stem rust, *Puccinia graminis* -- northeast Oreg.

FESTUCA THURBERI Vasey

Bends, cause undet. -- Pullman, Wash.

FESTUCA VIRIDULA Vasey

Leaf rust, *Puccinia crandallii* -- Pullman, Wash.

GLYCERIA ELATA (Nash) Hitchc.

Leaf spot, *Septoria nodorum* -- northeast Oreg.

Leaf streak, *Scolecotrichum graminis* -- eastern Wash.

GLYCERIA GRANDIS S. Wats.

Leaf smut, *Ustilago longissima* -- northern Idaho, central Mont., northeast Oreg.

GLYCERIA PAUCIFLORA Presl

- Leaf spot, *Septoria nodorum* -- Cascade Mts., Wash.
Stem rust, *Puccinia graminis* -- western Idaho.

GLYCERIA STRIATA (Lam.) Hitchc.

- Leaf rot, *Stagonospora* sp. -- Niawa, Minn.

HESPEROCHLOA KINGII (S. Wats.) Rydb.

- Selenophoma stem speckle, *Selenophoma donacis* var. -- Beartooth Pass. in Mont.

HIEROCHLOË ODORATA (L.) Beauv.

- Leaf rot (trace), *Helminthosporium* sp. -- northern Calif.
Leaf spot, *Ascochyta graminicola* -- Rapid City, S. Dak.
Stem rust, *Puccinia graminis* (with *Darluca*) -- northern Calif.

HILARIA JAMESII (Torr.) Benth.

- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

HILARIA MUTICA (Buckl.) Benth.

- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

HOLCUS LANATUS L.

- Crown rust, *Puccinia coronata* -- western Wash., western, northern and central Calif.

HORDEUM BREVISUBULATUM (Trin.) Link (P.I. 131539).

- Bacterial spot, *Bacterium translucens* -- Mandan, N. Dak.
Bends, cause undet. -- eastern Wash.
Brown stripe rust, *Puccinia montanensis* -- Mandan, N. Dak.
Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash.
Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.
Rhizoctonia solani -- Mandan, N. Dak.
Stem rust, *Puccinia graminis* -- Mandan, N. Dak.
Stem smut, *Ustilago hypodytes* -- Pullman, Wash.

HORDEUM BULFOSUM L. (P.I. 107361).

- Damping-off, *Pythium debaryanum* -- Mandan, N. Dak.
Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.
Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.
Stripe rust, *Puccinia glumarum* -- Tucson, Ariz. and Pullman, Wash.

HORDEUM JUBATUM L.

- Brown stripe rust, *Puccinia montanensis* -- southern Mont.
Ergot, *Claviceps purpurea* -- northeast Oreg.
Flag smut, *Urocystis agropyri* -- northeast Oreg.
Head smut, *Ustilago bullata* -- western Mont., northeast Oreg., northern Utah.
Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash., northeast Oreg., N. Dak.

HORDEUM JUBATUM Cont.

- Leaf spot, *Septoria passerinii* -- common in N. Dak.
- Leaf streak, *Scolecotrichum graminis* -- Marion, Sydney, and western Mont.; East Grand Forks, Minn.; central N. Dak.
- Loose smut, *Ustilago sitanii* -- southern Wash.
- Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.
- Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.
- Fusarium scirpi* var. *compactum* -- Emerado, N. Dak.
- Rhizoctonia solani* -- Mandan, N. Dak.
- Stem rust, *Puccinia graminis* -- common from central Wash. to Minn.
- Stripe rust, *Puccinia glumarum* -- eastern Wash.

HORDEUM JUBATUM var. CAESPITOSUM (Scribn.) Hitchc.

- Ergot, *Claviceps purpurea* -- western and southern Mont.
- Head smut, *Ustilago bullata* -- western Mont.
- Leaf rust, *Puccinia rubigo-vera* -- central Wash.
- Leaf streak, *Scolecotrichum graminis* -- southern Wash.
- Loose smut, *Ustilago sitanii* -- southern Wash.
- Stripe rust, *Puccinia glumarum* -- western Mont., eastern and central Wash.

HORDEUM MURINUM L.

- Leaf rust, *Puccinia hordei*, with parasite *Darluca filum* -- eastern Wash.
- Stem rust, *Puccinia graminis* -- eastern Wash.
- Stripe rust, *Puccinia glumarum* -- eastern Wash.

HORDEUM NODOSUM L.

- Head smut, *Ustilago bullata* -- Pullman, Wash.
- Leaf rust, *Puccinia rubigo-vera* (with parasite *Darluca filum*), western Idaho, northeast Oreg.
- Leaf spot, *Septoria passerinii* -- Sydney, Mont.
- Leaf streak, *Scolecotrichum graminis* -- Marion, Mont., southern Mont.
- Stem rust, *Puccinia graminis* -- western Idaho.
- Stripe rust, *Puccinia glumarum* -- Pullman, Wash.; western Idaho; northeast Oreg.

HORDEUM SPONTANEUM C. Koch

- Leaf rust, *Puccinia anomala* -- western Calif.

KOELERIA CRISTATA (L.) Pers.

- Bends, cause undet. -- Pullman, Wash.
- Leaf rust, *Puccinia koeleriae* -- Pullman, Wash. (with parasite *Darluca filum*); central Mont.; western Oreg.
- Leaf spot, *Septoria calamagrostidis* f. *koeleriae* -- Pullman, Wash.; northern Wyo.
- Leaf streak, *Scolecotrichum graminis* -- Jackson, Wyo.; Steele, N. Dak.

KOEHLERIA CRISTATA Cont.

- Powdery mildew, *Erysiphe graminis* -- Pullman, Wash.
- Secondary rootrot, *Curvularia geniculata* -- Yates, Mont.
- Fusarium scirpi* var. *acuminatum* -- Steele, N. Dak.
- Rhizoctonia solani* -- Steele, N. Dak.
- Sheath and leaf spot, *Selenophoma donacis* var. -- Pullman, Wash.;
Gardner, Langdon, N. Dak.; Jackson, Wyo.
- Stem rust, *Puccinia graminis* -- western Calif.; northeast Oreg.

LOLIUM MULTIFLORUM Lam.

- Anthraxnose, *Colletotrichum graminicolum* -- Corvallis, Oreg.
- Crown rust, *Puccinia coronata* -- Corvallis, Oreg.; southern,
western and central Calif.
- Ergot, *Claviceps purpurea* -- northern Calif. and Corvallis, Oreg.
- Rootrot, *Rhizoctonia solani* -- Mandan, N. Dak.

LOLIUM PERENNE L.

- Anthraxnose, *Colletotrichum graminicolum* -- Corvallis, Oreg.
- Chocolate spot, *Bacterium coronafaciens atropurpureum* -- Corvallis,
Oreg.
- Crown rust, *Puccinia coronata* -- southern, western and central Calif.
- Ergot, *Claviceps purpurea* -- northern Calif. and Corvallis, Oreg.
- Leaf spot, *Ascochyta lolii* (Zimm.) Spr. & John. -- northern Calif.

LOLIUM REMOTUM Schrank

- Crown rust, *Puccinia coronata* -- western and central Calif.

LOLIUM SUBULATUM Visiani

- Crown rust, *Puccinia coronata* -- western Calif.

MELICA ARISTATA Thurb.

- Stem rust, *Puccinia graminis* -- central Calif.

MELICA BULBOSA Geyer

- Leaf blast, *Cercospora subulata* -- northwest Wyo.
- Twist disease, *Dilophospora alopecuri* -- northwest Wyo.

MELICA CALIFORNICA Scribn.

- Powdery mildew, *Erysiphe graminis* -- central Calif.

MELICA GEYERI Munro

- Leaf streak, *Scolecotrichum graminis* -- northwest Wyo.

MELICA HARFORDII Boland.

- Stem smut, *Ustilago hypodytes* -- Pullman, Wash.

MICHEL'S GRASS (SECALE sp.)

- Ergot, *Claviceps purpurea* -- McCanna, Mandan, N. Dak.
- Leaf rust, *Puccinia rubigo-vera* -- Pullman, eastern Wash.; Bard
and western Calif.; northeast and western Oreg.; Mandan, N. Dak.

MICHEL'S GRASS Cont.

Leaf streak, *Scolecotrichum graminis* -- Pullman, Wash.

MUHLENBERGIA CUSPIDATA (Torr.) Rydb.

Tar spot, *Phyllachora vulgata* -- north of Beach, N. Dak.

MUHLENBERGIA JAPONICA Steud. (P.I. 135606).

Secondary rootrot, *Curvularia geniculata* -- Mandan, N. Dak.

Helminthosporium halodes -- Mandan, N. Dak.

MUHLENBERGIA MEXICANA (L.) Trin.

Leaf spot, *Septoria* sp. -- Lake Itasca, Minn.

MUHLENBERGIA RACEMOSA (Michx.) B.S.P.

Root browning, *Pythium arrhenomanes* -- Lake Itasca, Minn.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

Rhizoctonia solani -- Itasca Park, Minn.

ORYZOPSIS HYMENCIDES (Roem. and Schult.) Ricker.

Bends, cause undet. -- Pullman, Wash.; northern Wyo.

Damping-off, *Pythium debaryanum* -- McCanna, N. Dak.

Leaf spot, *Stagonospora arenaria* -- Terry, Mont.

Root browning, *Pythium arrhenomanes* -- Mandan, McCanna, N. Dak.

Rootrot, *Helminthosporium sativum* -- Mandan, McCanna, Dickinson, N. Dak.

Rust, *Puccinia scaber*, with *Darluca filum* -- central Mont.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, McCanna, Dickinson, N. Dak.

Rhizoctonia solani -- Mandan, Dickinson, McCanna, N. Dak.

Selenophoma stem speckle, *Selenophoma donacis* var. -- Roosevelt Park, N. Dak.; Terry, Mont.

Sheath and leaf streak, *Scolecotrichum graminis* -- Pullman, Wash.

Stem smut, *Ustilago hypodytes* -- Pullman, central Wash.; central and western Mont.; western Wyo.; northern Utah.

Ustilago sp.^{9/} -- northern and western Wyo., including Yellowstone Park.

ORYZOPSIS MILLIACEA (L.) Benth. and Hook.

Damping-off, *Pythium debaryanum* -- Mandan, N. Dak.

PANICUM CAPILLARE L.

Bacterial eye-spot, *Bacterium holci* -- Mandan, N. Dak.

Leaf spot, *Helminthosporium* sp. -- western Idaho.

Loose smut, *Sorosporium syntherismae* -- western Idaho; central N. Dak.

Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.

^{9/} Found also on several species of *Stipa*, and reported herein. Under investigation at Pullman, Wash.

PANICUM CAPILLARE Cont.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Dickinson, Mandan, N. Dak.

Rhizoctonia solani -- Mandan, Dickinson, N. Dak.

PANICUM DICHOTOMIFLORUM Michx.

Rootrot, *Fusarium scirpi* var. *acuminatum* -- Norfolk, Nebr.

PANICUM FLEXILE (Gattinger) Scribn.

Leaf spot, *Helminthosporium* sp. -- Tokio, N. Dak.

PANICUM MILIACEUM L.

Bacterial eye-spot, *Bacterium holci* -- Langdon, Leonard, N. Dak.

Root browning, *Pythium arrhenomanes* -- New Salem, N. Dak.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, New Salem, Richardton, N. Dak.

Smut, *Sorosporium syntherismae* -- Mandan, N. Dak.

PANICUM VIRGATUM L.

Damping-off, *Pythium debaryanum* -- Albion, Nebr.

Leaf spot, *Ascochyta* sp. -- near Wilton, N. Dak.

Cercospora fusimaculans -- Coburn, N. Dak.

Rootrot, *Helminthosporium sativum* -- Albion, Nebr.

Secondary rootrot, *Curvularia geniculata* -- Albion, Nebr.

Fusarium scirpi var. *acuminatum* -- Albion, Nebr.; Mandan, N. Dak.

Selenophoma speckle, *Selenophoma donacis* -- Coburn, Mandan, N. Dak.

Stomatal leaf drown, cause, excess rain plus *Bacterium* sp. -- Mandan, N. Dak.

PHALARIS ARUNDINACEA L.

Crown rust, *Puccinia coronata* -- southern Wash.

Purple leaf spot, *Stagonospora arenaria* -- Bismarck, N. Dak.; Hecla, S. Dak.

Root necrosis, *Pythium debaryanum* -- Bismarck, N. Dak.

Rust, *Puccinia sessilis* -- Mandan, N. Dak.

Selenophoma speckle and leaf spot, *Selenophoma donacis* -- Lower Souris Game Sanctuary, N. Dak.

Stem smut, *Ustilago hypodytes* -- Pullman, Wash.

PHALARIS CALIFORNICA Hook. & Arn.

Stem rust, *Puccinia graminis* -- central Calif.

PHALARIS MINOR Retz.

Stem rust, *Puccinia graminis* -- central Calif.

PHALARIS TUBEROSA L.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

PHLEUM BOEHRMERI Wibel. = P. PHLEOIDES

PHLEUM GRAECUM Boiss. & Heldr.

Stem rust, *Puccinia graminis* -- Pullman, Wash.

PHLEUM PHLECIDES (L.) Karst. (includes *P. BOEHMERI* Wibel.) (E. Kasakstan W 356; U.S.S.R. W 2490).

Leaf spot, *Heterosporium phlei* -- Pullman, Wash.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

Stem rust, *Puccinia graminis* -- Pullman, Wash.; northwest Calif.

Stem smut, *Ustilago hypodytes* -- Pullman, Wash.

PHLEUM PRATENSE L.

Bends, cause undet. -- Pullman, Wash.

Leaf spot, *Ascochyta* sp. -- Niawa, Minn.

Heterosporium phlei -- Pullman, Wash.; northern and western Idaho; western Oreg.; Niawa, Minn.

Leaf streak, *Scolecotrichum graminis* -- western Idaho; central Mont.; western Oreg.; southern Wyo.; western Minn.

Rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, McCanna, N. Dak.

Rhizoctonia solani -- McCanna, N. Dak.

Stem rust, *Puccinia graminis* -- Pullman, Wash.; central Mont.; western Oreg.

Stripe smut, *Ustilago striaeformis* -- Pullman, Wash.; western Calif.; western Idaho; central Mont.; northern Oreg.; eastern Wash.

PHRAGMITES COMMUNIS Trin.

Rootrot, *Pythium debaryanum* -- Bismarck, N. Dak.

Pythium ultimum -- Bismarck, N. Dak.

Rust, *Puccinia magnusiana* -- west of Cleveland, N. Dak.

POA ALPINA L.

Leaf rust, *Puccinia poae-sudeticae* -- southern Mont.

Selenophoma stem speckle, *Selenophoma donacis* var. -- Beartooth Pass in Mont.

POA AMPLA Merr.

Damping-off, *Pythium debaryanum* -- Mandan, N. Dak.

Pythium ultimum -- McCanna, N. Dak.

Ergot, *Claviceps purpurea* -- Pullman, Wash.; northern Idaho.

Flag smut, *Urocystis agropyri* -- northwest Wyo.

Leaf rust, *Puccinia poae-sudeticae* -- Pullman, Wash. (with parasite *Darluca filum*); northeast Oreg. (also with *Darluca filum*).

Puccinia rubigo-vera -- Pullman, Wash. and general in eastern and southern Wash.; southern Idaho; northeast Oreg., central Oreg.

Leaf streak, *Scolecotrichum graminis* -- Pullman, Wash.; central Mont.

Selenophoma stem speckle and leaf spot, *Selenophoma donacis* var. -- Pullman, Wash.

Stem rust, *Puccinia graminis* -- Pullman, central Wash.; northeast Oreg.

Stem smut, *Ustilago hypodytes* -- Pullman, Wash.

POA ANNUA L.

- Head mold, *Fusarium* sp. -- Ft. Steilacoom, Wash.
- Leaf rust, *Puccinia poae-sudeticae* -- western Calif.
- Leaf spot, *Septoria macropoda* -- Ft. Steilacoom, Wash.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

POA ARIPEA Vasey

- Leaf rust, *Puccinia poae-sudeticae* -- Pullman, Wash.; (with parasite *Darluca filum*), Mandan, N. Dak.
- Leaf spot, *Selenophoma donacis* var. -- Mandan, N. Dak.
- Powdery mildew, *Erysiphe graminis* -- Mandan, N. Dak.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

POA ARCTICA R. Br.

- Selenophoma* stem speckle, *Selenophoma donacis* var. -- Cooke City, Mont.

POA BULBOSA L.

- Damping-off, *Pythium debaryanum* -- McCanna, N. Dak.
- Leaf rust, *Puccinia poae-sudeticae* with parasite *Darluca filum* -- Pullman, Wash.
- Rootrot, *Helminthosporium sativum* -- McCanna, N. Dak.
- Secondary rootrot, *Rhizoctonia solani* -- McCanna, N. Dak.

POA CANBYI (Scribn.) Piper

- Bends, cause undet. -- Pullman, Wash.
- Leaf rust, *Puccinia poae-sudeticae* with parasite *Darluca filum* -- Pullman, Wash.; Mandan, N. Dak.
- Puccinia rubigo-vera* -- central Calif.; southern Idaho.
- Leaf spot, *Septoria oudemansii* -- Mandan, N. Dak.
- Leaf streak, *Scolecotrichum graminis* -- western N. Dak.; eastern Mont.
- Powdery mildew, *Erysiphe graminis* -- Mandan, N. Dak.
- Stem rust, *Puccinia graminis* -- Pullman, Wash.; central Calif.
- Stripe smut, *Ustilago striaeformis* -- near Mandan, N. Dak.

POA COMPRESSA L.

- Cat-tail disease, *Epichloë typhina* -- New Rockford, N. Dak.
- Leaf rust, *Puccinia poae-sudeticae* -- Wild Rice, N. Dak. (with rust parasitized by *Fusarium avenaceum*).
- Leaf spot, *Helminthosporium vagans* -- Wild Rice, N. Dak.
- Septoria oudemansii* -- Wild Rice, N. Dak.
- Leaf spot, mold and blotch, *Hendersonia crastophila* -- Clyde, N. Dak.
- Leaf streak, *Scolecotrichum graminis* -- Pullman, Wash.; N. Dak.; S. Dak.; Mont.; Minn.
- Powdery mildew, *Erysiphe graminis* -- central Mont.
- Seed mold, *Cladosporium herbarum* -- Wild Rice, N. Dak.
- Curvularia geniculata* -- Lake Lida, Minn.; Wild Rice, N. Dak.
- Selenophoma* stem speckle, *Selenophoma donacis* var. -- 2 miles north of Nekoma, N. Dak.

POA CURTA Rydb.

Leaf rust, *Puccinia poae-sudeticae*, with parasite *Darluca filum* -- Pullman, Wash.

POA CUSICKII Vasey

Leaf rust, *Puccinia poae-sudeticae* -- Pullman, Wash. (with parasite *Darluca filum*) -- western Wyo.

Puccinia rubigo-vera with parasite *Darluca filum* -- Pullman, Wash.

Powdery mildew, *Erysiphe graminis* -- northern Wyo.

Stem rust, *Puccinia graminis* -- Pullman, Wash.

POA EPILIS Scribn.

Leaf rust, *Puccinia poae-sudeticae* -- Pullman, Wash.; western Wyo.

Leaf streak, *Scolecotrichum graminis* -- northern Wyo.

Selenophoma stem speckle, *Selenophoma donacis* var. -- northern Wyo.

Stem rust, *Puccinia graminis* -- Pullman, Wash.

POA GLAUCIFOLIA Scribn. & Will.

Powdery mildew, *Erysiphe graminis* -- Mandan, N. Dak.

Stem rust, *Puccinia graminis* (with associate *Bacterium* sp.) -- S.C.S. Nursery, North Platte, Nebr.

POA GRACILLIMA Vasey

Leaf rust, *Puccinia poae-sudeticae* with parasite *Darluca filum* -- Pullman, Wash.

POA INTERIOR Rydb.

Leaf rust, *Puccinia poae-sudeticae* with parasite *Darluca filum* -- Pullman, Wash.

Selenophoma stem speckle and leaf spot, *Selenophoma donacis* var. -- south of Red Lodge, Mont.

Stem rust, *Puccinia graminis* -- Pullman, Wash.

POA JUNCIFOLIA Scribn.

Leaf rust, *Puccinia poae-sudeticae* with parasite *Darluca filum* -- Pullman, Wash.

Puccinia rubigo-vera -- southern Idaho.

Stem rust, *Puccinia graminis* -- Pullman, Wash.

POA LONGIFOLIA Trin.

Leaf rust, *Puccinia poae-sudeticae* with parasite *Darluca filum* -- Pullman, Wash.

Stem rust, *Puccinia graminis* -- Pullman, Wash.

POA MEMORALIS L.

Bends, cause undet. -- Pullman, Wash.

Ergot, *Claviceps purpurea* -- Pullman, Wash.

Leaf rust, *Puccinia poae-sudeticae* -- western Oreg.

Powdery mildew, *Erysiphe graminis* -- Pullman, Wash.

POA NERVOSA (Hook.) Vasey

Leaf rust, *Puccinia poae-sudeticae* -- Pullman, Wash.

POA NEVADENSIS Vasey

Bends, cause undet. -- Pullman, Wash.

Leaf rust, *Puccinia poae-sudeticae*, with parasite *Darluca filum* -- Pullman, Wash.; western Calif.

Puccinia rubigo-vera -- western Calif.; southern Idaho.

Leaf spot, *Septoria oudemansii* -- Fargo, N. Dak.

Leaf streak, *Scolecotrichum graminis* -- northwest Wyo.

Powdery mildew, *Erysiphe graminis* -- Pullman, Wash.

Stem rust, *Puccinia graminis* -- Pullman, Wash.; Fargo, N. Dak.

Stem smut, *Ustilago hypodytes* -- Pullman, Wash.

POA PALUSTRIS L.

Damping-off, *Pythium debaryanum* -- Mandan, N. Dak.

Ergot, *Claviceps purpurea* -- Blaisdell, N. Dak.

Glume and sheath blotch, *Septoria nodorum* -- western S. Dak.

Leaf rust, *Puccinia poae-sudeticae* (with parasite *Darluca filum*) -- Pullman, Wash.; southern Mont.; N. Dak.; S. Dak.

Powdery mildew, *Erysiphe graminis* -- Pullman, Wash.; southern Mont.; northern Wyo.; central N. Dak.

Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.

Secondary rootrot, *Rhizoctonia solani* -- Lake Itasca, Minn.

POA PRATENSIS L.

Anthraxnose, *Colletotrichum graminicolum* -- Roosevelt Park, N. Dak.; Webster, S. Dak.

Brown patch, *Rhizoctonia solani* -- Albion, Norfolk, Nebr.; western Minn.

Ergot, *Claviceps purpurea* -- central Mont.

Leaf mottle, *Septoria macropoda* var. *septulata* -- general from Puget Sound to the Mississippi River.

Leaf rot, *Fusarium graminearum* -- Jackson, Wyo.

Leaf rust, *Puccinia poae-sudeticae* -- Tucson, Ariz., Pullman, Wash. (with *Darluca filum*); central Mont. (also with *Darluca filum*); southern Mont.; western Idaho; western Oreg. (with *Darluca filum*); eastern and southern Wash.; central Calif.; general east of Rockies.

Leaf spot, *Ascochyta graminicola* -- Fargo, N. Dak.

Helminthosporium vagans -- Pullman, eastern Wash.; general in moister places in Great Plains.

Septoria oudemansii -- western Idaho; Newman Grove, Nebr.; Fargo and Lawton, N. Dak.; Itasca Park, Minn.; Mt. Shasta, Calif. (Cooke).

Stagonospora sp. -- Laporte, Minn.

Leaf streak, *Scolecotrichum graminis* -- Wibaux, Mont.

Powdery mildew, *Erysiphe graminis* -- eastern Wash.; western and southern Mont.; Mt. Shasta, Calif.; general in N. Dak., and in western Minn.

POA PRATENSIS Cont.

- Rootrot, *Helminthosporium sativum* -- Devils Lake, Fargo, Harwood, N. Dak.
 Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Nebr.; S. Dak.; N. Dak.
 Seed molds, *Hendersonia* spp.; *Sphaeropsis* sp. (N. Dak. only); *Wojnowicia graminis*; *Mycosphaerella tulasnei* -- N. Dak.; Mont.; Wyo.
 Selenophoma speckle, *Selenophoma donacis* var. -- Fargo, N. Dak.; Red Lodge, Livingston, Mont.; Jackson, Wyo.
 Stripe smut, *Ustilago striaeformis* -- eastern Wash.

POA SCABRELLA (Thurb.) Benth.

- Leaf rust, *Puccinia poae-sudeticae* (with parasite *Darluca filum*) -- Pullman, Wash.; and central Calif.
Puccinia rubigo-vera -- western Calif.; southern Idaho.
 Powdery mildew, *Erysiphe graminis* -- Pullman, Wash.
 Stem rust, *Puccinia graminis* -- central Calif.

POA SECUNDA Presl

- Bends, cause undet. -- Pullman, Wash.
 Black leaf rust, *Uromyces dactylidis* -- western N. Dak.
 Cat-tail disease, *Epichloë typhina* -- Little Missouri River, N. Dak.
 Ergot, *Claviceps purpurea* -- Pullman, Wash.
 Leaf spot, *Septoria macropoda* var. *grandis* -- Kildeer Mts., N. Dak.
 Leaf rust, *Puccinia poae-sudeticae* with parasite *Darluca filum* -- Pullman, Wash.
Puccinia rubigo-vera -- western Calif.; southern Idaho.
 Leaf smut, *Ustilago* sp.^{10/} -- northeast Oreg.
 Leaf streak, *Scolecotrichum graminis* -- Kildeer Mts., N. Dak.
 Powdery mildew, *Erysiphe graminis* -- Pullman, Wash.
 Root necrosis, *Pythium debaryanum* -- Grassy Butte, Zap, N. Dak.
Pythium ultimum -- Grassy Butte, N. Dak.
 Rootrot, *Helminthosporium sativum* -- central N. Dak.
 Selenophoma speckle, *Selenophoma donacis* var. -- S. Roosevelt Park, N. Dak.
 Stem rust, *Puccinia graminis* -- Pullman, Wash.; northwest Calif.
 Stripe smut, *Ustilago striaeformis* -- western Wyo.

POA STENANTHA Trin.

- Ergot, *Claviceps purpurea* -- Pullman, Wash.
 Leaf rust, *Puccinia poae-sudeticae* -- Pullman, Wash.

POA SYLVESTRIS A. Gray

- Leaf rust, *Puccinia poae-sudeticae* -- Pullman, Wash.

^{10/} Under investigation at Pullman, Wash.

POA TIBETICA Munro

Leaf rust, *Puccinia poae-sudeticae* -- Pullman, Wash.

Stem rust, *Puccinia graminis* -- Pullman, Wash.

POA TRIVIALIS L.

Leaf rust, *Puccinia poae-sudeticae* -- Pullman, Wash.

POA VASEYCHLOA Scribn.

Leaf rust, *Puccinia poae-sudeticae* with parasite *Darluca filum* -- Pullman, Wash.

POLYPOGON MONSPELIENSIS (L.) Desf.

Crown rust, *Puccinia coronata* -- central Calif.

Powdery mildew, *Erysiphe graminis* -- central Calif., eastern and central Wash.

PUCCINELLIA DISTANS (L.) Parl.

Ergot, *Claviceps purpurea* -- Pullman, Wash.

Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash.

Stem rust, *Puccinia graminis* -- Pullman, Wash.

PUCCINELLIA LEMMONI (Vasey) Scribn.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

PUCCINELLIA LIMOSA (Schur) Holmb. (P.I. 125281).

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

PUCCINELLIA NUTKAENSIS (Presl) Fern. & Weath.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

PUCCINELLIA NUTTALIANA (Schult.) Hitchc.

Leaf rust, *Puccinia poae-sudeticae* (with parasite *Darluca filum*) -- Pullman, Wash.

Puccinia rubigo-vera -- Pullman, Wash.; northeast Oreg.;

Mandan, N. Dak. (with parasite *Darluca filum*).

Stem rust, *Puccinia graminis* -- Pullman, Wash.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

SCHEDONNARDUS PANICULATUS (Nutt.) Trel.

Rust, *Puccinia schedonnardi* -- Mandan, N. Dak.

SCHIZACHNE PURPURASCENS (Torr.) Swallen

Anthrachnose, *Colletotrichum graminicolum* -- Itasca Park, Minn.

Leaf rot, *Hendersonia* sp. -- Itasca Park, Minn.

Leaf spot, *Phyllosticta* sp. -- Itasca Park, Minn.

SCOLOCHLOA FESTUCACEA (Willd.) Link. (Fluminea festucea (Willd.) Hitchc.)

Grey spot, *Piricularia grisea* -- Nekoma, N. Dak.

Purple leaf spot, *Stagonospora arenaria* -- New Effington, Nekoma, N. Dak.

SECALE CEREALE x S. MONTANUM

- Ergot, *Claviceps purpurea* -- Pullman, Wash.
- Stem smut, *Ustilago hypodytes* -- eastern Wash.

SECALE MONTANUM Guss.

- Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash.
- Leaf scald, *Rhynchosporium secalis* -- Pullman, Wash.
- Leaf streak, *Scolecotrichum graminis* -- Pullman, Wash.
- Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

SETARIA ITALICA (L.) Beauv.

- Bacterial eye-spot, *Bacterium holci* -- Grand Forks, Mandan, N. Dak.
- Root browning, *Pythium arrhenomanes* -- Mandan, Roth, N. Dak.; Sisseton, S. Dak.
- Root necrosis and Damping-off, *Pythium debaryanum* -- Mandan, N. Dak.
- Rootrot, *Helminthosporium sativum* -- Langdon, N. Dak.; Malloy, Minn.
- Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Langdon, Mandan, N. Dak.

SETARIA LUTESCENS (Weigel) F. T. Hubb.

- Kernel smut, *Ustilago neglecta* -- northern Utah.
- Rootrot, *Helminthosporium sativum* -- Buxton, Fargo, N. Dak.

SETARIA VIRIDIS (L.) Beauv.

- Bacterial leaf spot, *Bacterium* sp. -- general in N. Dak.
- Damping-off, *Pythium debaryanum* -- Fargo, McCanna, N. Dak.; White Rock, S. Dak.; Arago, Minn.
- Downy mildew, *Sclerospora graminicola* -- Langdon, N. Dak.
- Grey leaf spot, *Piricularia grisea* -- general in N. Dak.
- Red eye-spot, *Phyllosticta sorghina* -- Langdon, N. Dak.
- Root browning, *Pythium arrhenomanes* -- Mandan, St. Anthony, Yucca, McCanna, Driscoll, Sheyenne, N. Dak.; Sprague Siding, Minn.; White Rock, S. Dak.
- Rootrot, *Helminthosporium sativum* -- Arvilla, Fargo, N. Dak.
- Rhizoctonia solani* -- Fargo, N. Dak.
- Secondary rootrot, *Curvularia geniculata* -- Arago, Minn.; New Salem, Richardton, N. Dak.
- Fusarium moniliforme* -- Dickinson, N. Dak.
- Fusarium scirpi* var. *acuminatum* -- Fargo, Sheyenne, N. Dak.; Lily, White Rock, S. Dak.
- Helminthosporium halodes* -- Sisseton, White Rock, S. Dak.
- Helminthosporium monoceras* -- New Salem, Minot, N. Dak.
- Helminthosporium turcicum* -- Sisseton, S. Dak.

SITANION HANSENI (Scribn.) J. G. Smith

- Leaf spot, *Selenophoma* sp. -- Mt. Shasta, Calif.
- Rust, *Puccinia pattersoniana* -- central Calif.
- Leaf streak, *Scolecotrichum graminis* -- Mt. Shasta, Calif.
- Stripe rust, *Puccinia glumarum* -- western Oreg.; Mt. Shasta, Calif.

SITANION HYSTRIX (Nutt.) J. G. Smith

Ergot, *Claviceps purpurea* -- northeast Oreg., western Oreg.

Leaf rust, *Puccinia rubigo-vera* -- northern Idaho; Utah;
western Wyo.

Leaf spot, *Scolecotrichum graminis* -- western and southcentral
Mont.

Rust, *Puccinia pattersoniana* -- northern Idaho.

Selenophoma stem speckle, *Selenophoma donacis* -- central Mont.

Sheath and leaf spot, *Selenophoma* sp. -- northern Utah.

Stripe rust, *Puccinia glumarum* -- northeast Oreg.; northern Wyo.

SITANION JUBATUM J. G. Smith

Loose smut, *Ustilago sitanii* -- southern Wash.

Rust, *Puccinia pattersoniana* -- central Wash.

Stem rust, *Puccinia graminis* -- northern Idaho.

Stem smut, *Ustilago hypodytes* -- Pullman, Wash.

Stripe rust, *Puccinia glumarum* -- Pullman, Wash.; western Calif.

Twist disease, *Dilophospora alopecuri* -- southern Wash.

Yellow bacterial head blight, *Aplanobacter agropyri* -- southern
Wash.

SORGHASTRUM NUTANS (L.) Nash

Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.

SORGHUM HALEPENSE (L.) Pers.

Bacterial eye-spot, *Bacterium holci* -- Mandan, N. Dak.

Smut, *Sphacelotheca cruenta* -- southern Calif.

Sphacelotheca sorghi -- central Ariz.; Huron, S. Dak.

SORGHUM VULGARE Pers.

Bacterial eye-spot, *Bacterium holci* -- general in central and
eastern N. Dak.

Root browning (Milo disease), *Pythium arrhenomanes* -- Mandan,
McCanna, N. Dak.

Root necrosis, *Pythium debaryanum* -- Mandan, Minot, N. Dak.

Rootrot, *Helminthosporium sativum* -- Surrey, N. Dak.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

SORGHUM VULGARE var. SUDANENSE (Piper) Hitchc.

Bacterial eye-spot, *Bacterium holci* -- Langdon, Devil's Lake,
Mandan, N. Dak.

Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.

Root necrosis, *Pythium debaryanum* -- Wild Rice, Devil's Lake,
Mandan, N. Dak.

Rootrot, *Helminthosporium sativum* -- Hebron, Wild Rice, N. Dak.

Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.

Helminthosporium turcicum -- Hebron, N. Dak.

SPARTINA GRACILIS Trin.

Rust, *Puccinia distichlidis*, with parasite *Darluca filum* -- Townsend,
Mont.

SPARTINA PECTINATA Link

Leaf spot, *Ascochyta spartinae* ^{11/} -- central S. Dak.
 Rust, *Puccinia peridermiospora* -- Fargo, Mandan, N. Dak.

SPHENOPHOLIS OBTUSATA (Michx.) Scribn.

Rust, *Puccinia eatoniae* -- Mandan, N. Dak.

SPODOPOGON SIBIRICUS Trin. (P.I. 135626).

Bacterial leaf streak, *Bacterium andropogonii* -- Mandan, N. Dak.

SPOROBOLUS AIROIDES (Torr.) Torr.

Bacterial slime blight, *Aplanobacter* sp. -- Mandan, N. Dak.
 Bends, cause undet. -- Pullman, Wash.
 Leaf spot, *Ascochyta stipae* -- Pullman, Wash.
Hendersonia simplex -- Pullman, Wash.

SPOROBOLUS ASPER (Michx.) Kunth

Leaf spot, *Hendersonia simplex* -- Pullman, Wash.

SPOROBOLUS CRYPTANDRUS (Torr.) A. Gray

Rust, *Puccinia simulans* -- western Idaho; southern Mont.; Fargo, N. Dak.

SPOROBOLUS FLEXUOSUS (Thurb.) Rydb.

Bacterium sp. leaf spot -- Mandan, N. Dak.

SPOROBOLUS HETEROCLEPIS (A. Gray) A. Gray

Anthraxnose, *Colletotrichum graminicolum* -- Buffalo, N. Dak.

SPOROBOLUS NEGLECTUS Nash

Secondary rootrot, *Curvularia geniculata* -- Mandan, N. Dak.

STIPA BAICALENSIS Roshev. (P.I. 135627).

Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.

STIPA CERNUA Stebbins & Love

Stem smut, *Ustilago* sp. -- central Calif.

STIPA COLUMBIANA Macoun

Leaf streak, *Scolecotrichum graminis* -- northeast Oreg.
 Secondary rootrot, *Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.
 Stripe rust, *Puccinia glumarum* -- Pullman, Wash.

STIPA COMATA Trin. & Rupr.

Chocolate spot, *Bacterium coronafaciens* var. *atropurpureum* -- southern Mont.; 20 miles south of Big Timber, Mont.
 Leaf spot, *Selenophoma donacis* -- north of Wibaux, Mont.; near Beach, N. Dak.

^{11/} A species of *Septoria*, under investigation at Mandan, N. Dak.

STIPA COMATA Cont.

- Leaf streak, *Scolecotrichum graminis* -- Bradley, S. Dak.
- Root browning, *Pythium arrhenomanes* -- Mandan, Park River, N. Dak.
- Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.
- Rust, *Puccinia scaber* -- central Mont.
- Puccinia stipae* -- Pullman, Wash.; central Mont.; northeast Oreg.; central and eastern Wash.; western Wyo.; S. Roosevelt Park, N. Dak.
- Secondary rootrot, *Curvularia geniculata* -- Mandan, N. Dak.
- Fusarium scirpi* var. *acuminatum* -- Mandan, N. Dak.
- Rhizoctonia solani* -- Mandan, N. Dak.
- Stem rust, *Puccinia graminis* -- Pullman, Wash.
- Stem smut, *Sorosporium granulosum* -- central Mont.
- Ustilago hypodytes* -- southern Mont.; western Wyo.
- Ustilago* sp. -- western Wyo.

STIPA LETTERMANI Vasey

- Bends, cause undet. -- Pullman, Wash.
- Leaf streak, *Scolecotrichum graminis* -- northeast Oreg.
- Stem smut, *Ustilago jacksonii* -- Rich county, Utah.
- Ustilago* sp. -- western Wyo.

STIPA OCCIDENTALIS Thurb.

- Leaf streak, *Scolecotrichum graminis* -- Pullman, Wash.
- Rust, *Puccinia scaber* -- western Wyo.

STIPA RICHARDSONI Link

- Rust, *Puccinia stipae* -- Jackson, Wyo.
- Sheath and stem spot, *Selenophoma donacis* -- Jackson, Wyo.
- Selenophoma donacis* var. -- central Mont.
- Stem smut; *Ustilago* sp. -- central Mont.; western Wyo.

STIPA SIBIRICA (L.) Lam. (P.Q. 034946) (P.I. 110164).

- Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.
- Secondary rootrot, *Rhizoctonia solani* -- Mandan, N. Dak.

STIPA SPARTEA Trin.

- Root browning, *Pythium arrhenomanes* -- Mandan, N. Dak.
- Rootrot, *Helminthosporium sativum* -- Mandan, N. Dak.

STIPA SPECIOSA Trin. & Rupr.

- Stem smut, *Ustilago* sp. -- central Calif.

STIPA THURBERIANA Piper

- Leaf streak, *Scolecotrichum graminis* -- Pullman, Wash.; western Wyo.
- Rust, *Puccinia scaber* -- central Mont.
- Stem smut, *Ustilago hypodytes* -- southern Mont.
- Ustilago* sp. -- southern Mont.

STIPA VIRIDULA Trin.

- Blotch, *Stagonospora* sp. -- S. Roosevelt Park, N. Dak.
 Damping-off, *Pythium debaryanum* -- Mandan, N. Dak., Langdon,
 N. Dak.
 Ergot, *Claviceps purpurea* -- Nekoma, N. Dak.
 Leaf spot, *Ascochyta graminicola* -- Webster, S. Dak.
 Leaf streak, *Scolecotrichum graminis* -- Livingston, Mont.
 Rootrot, *Helminthosporium sativum* -- common in N. Dak. and S. Dak.
 Rust, *Puccinia scaber* -- general in N. Dak.; S. Dak.; Sprague
 Siding, Minn. Parasitized by *Darluca filum* at Mandan, N. Dak.,
 Clark, S. Dak.
 Secondary rootrot, *Curvularia geniculata* -- Mandan, Park River,
 N. Dak.
Fusarium scirpi var. *acuminatum* -- Mandan, N. Dak.
Rhizoctonia solani -- Park River, N. Dak.
Sclerotium sp. -- Mandan, N. Dak.
 Selenophoma stem speckle, *Selenophoma donacis* -- Argusville, N. Dak.;
 Livingston, Mont.
 Stem smut, *Ustilago hypodytes* -- Sprague Siding, Minn.
 White leaf spot, *Septoria secalis* var. *stipae* -- Spiritwood,
 Mandan, Gupzell, N. Dak.; Webster, S. Dak.

STIPA WILLIAMSII Scribn.

- Leaf spot, *Helminthosporium* sp. -- Pullman, Wash.
 Leaf streak, *Scolecotrichum graminis* -- western Idaho.

TRisetum CANESCENS Buckl.

- Leaf streak, *Scolecotrichum graminis* -- western Idaho; northwest
 Mont.
 Stem rust, *Puccinia graminis* -- northern Oreg.

TRisetum MONTANUM Vasey

- Leaf streak, *Scolecotrichum graminis* -- northwest Mont.

TRisetum SPICATUM (L.) Richt.

- Leaf rust, *Puccinia rubigo-vera* -- Pullman, Wash.; northwest, Wyo.
 (Darluca filum on rust).
 Leaf spot, *Selenophoma donacis* var. -- south of Red Lodge, Mont.;
 Beartooth Pass, Wyo.

PATHOGEN INDEXSCHIZOMYCETES -- EUBACTERIALES

APLANOBACTER AGROPYRI O'Gara

Agropyron cristatum
A. trichophorum
Sitanion jubatum
Sporobolus airoides

BACTERIUM ANDROPOGONI E. F. S.

Spodopogon sibiricus

BACTERIUM CORONAFACIENS Elliott

var. ATROPURPUREUM Reddy &
Godkin

Agropyron dasystachyum
A. repens
A. smithii
A. subsecundum
A. trachycaulum
Brachypodium sylvaticum
Bromus erectus
B. inermis
B. marginatus
Elymus canadensis
E. condensatus
E. dasystachys
E. excelsus
E. giganteus
E. interruptus
E. macounii
E. pseudoagropyron
E. sabulosus
E. salsuginosus

BACTERIUM CORONAFACIENS var.

AGROPURPUREUM Cont.
Elymus sibiricus
E. virginicus
Festuca rubra var. lanuginosa
Lolium perenne
Stipa comata

BACTERIUM HOLCI Kendrick

Panicum capillare
P. miliaceum
Setaria italica
Sorghum halepense
S. vulgare
S. vulgare var. sudanense

BACTERIUM TRANSLUCENS Jones,

Johnson, & Reddy
Hordeum brevisubulatum

BACTERIUM sp.

Andropogon furcatus
A. hallii
A. scoparius
Elymus junceus
Panicum virgatum
Puccinia graminis
P. rubigo-vera
Setaria viridis
Sporobolus flexuosus

PHYCOMYCETES

? APHANOMYCES sp.

Festuca elatior
F. rubra

PHYTOPHTHORA sp.

Agropyron sibiricum

PYTHIUM ARISTOSPORUM Vanterpool

Agropyron trachycaulum
Echinochloa crusgalli

PYTHIUM ARRHENOMANES Drechsle

Aegilops triuncialis
Agropyron amurense
A. ciliare
A. cristatum
A. dasystachyum
A. desertorum
A. elongatum
A. intermedium
A. repens

PHYCOMYCETES Cont.

PYTHIUM ARRHENOMANES Cont.

Agropyron riparium
 A. sibiricum
 A. spicatum
 A. trachycaulum
 A. trichophorum
 Ammophila arenaria
 Andropogon furcatus
 Arrhenatherum elatius
 Avena fatua
 Bouteloua curtipendula
 B. gracilis
 Brachypodium sylvaticum
 Bromus erectus
 B. inermis
 B. marginatus
 Echinochloa crusgalli
 Elymus glaucus
 E. interruptus
 E. junceus
 E. macounii
 Festuca elatior
 F. elatior var. arundinacea
 Hordeum jubatum
 Muhlenbergia racemosa
 Oryzopsis hymenoides
 Panicum miliaceum
 Setaria italica
 S. viridis
 Sorghastrum nutans
 Sorghum vulgare
 S. vulgare var. sudanense
 Stipa comata
 S. spartea

PYTHIUM DEBARIANUM Hesse

Agropyron caninum
 A. ciliare
 A. cristatum
 A. desertorum
 A. repens
 A. riparium
 A. sibiricum
 A. smithii
 A. trichophorum

PYTHIUM DEBARIANUM Cont.

Agrostis alba
 Andropogon furcatus
 A. hallii
 A. scoparius
 Arrhenatherum elatius
 Bouteloua curtipendula
 B. gracilis
 Bromus arvensis
 B. inermis
 Echinochloa crusgalli
 Elymus junceus
 E. macounii
 Festuca elatior
 F. elatior var. arundinacea
 F. rubra var. commutata
 Hordeum bulbosum
 Oryzopsis hymenoides
 O. miliaceum
 Panicum virgatum
 Phalaris arundinacea
 Phragmites communis
 Poa ampla
 P. bulbosa
 P. palustris
 P. secunda
 Setaria italica
 S. viridis
 Sorghum vulgare
 S. vulgare var. sudanense
 Stipa viridula

PYTHIUM IRREGULARE Buis.

Agropyron cristatum
 Bromus inermis
 B. tectorum
 Elymus junceus
 Festuca elatior

PYTHIUM (?) PERILLUM Drechsl.

Agropyron repens

PYTHIUM (?) PROLIFERUM Schenk

Bromus inermis
 B. tectorum

PHYCOMYCETES Cont.

PYTHIUM ULTIMUM Trow.

Agropyron caninum
 A. cristatum
 A. desertorum
 A. repens
 Agrostis alba
 Andropogon furcatus
 Bromus inermis

PYTHIUM ULTIMUM Cont.

Phragmites communis
 Poa ampla
 P. secunda

SCLEROSPORA GRAMINICOLA (Sacc.)

Schroet.
 Setaria viridis

ASCOMYCETES

CLAVICEPS PURPUREA (Fr.) Tul.

Agropyron caninum
 A. cristatum
 A. dasystachyum
 A. inerme
 A. repens
 A. riparium
 A. sibiricum
 A. smithii
 A. spicatum
 A. subsecundum
 A. trachycaulum
 A. trichophorum
 Alopecurus pratensis
 Arrhenatherum elatius
 Bromus carinatus
 B. ciliatus
 B. erectus
 B. inermis
 B. marginatus
 Calamagrostis inexpansa
 Dactylis glomerata
 Deschampsia caespitosa
 Elymus ambiguus
 E. condensatus
 E. dahuricus
 E. excelsus
 E. giganteus
 E. glaucus
 E. junceus
 E. macounii
 E. salsuginosus
 E. triticoides
 Festuca elatior var. arundinacea
 F. idahoensis

CLAVICEPS PURPUREA Cont.

Festuca rubra
 F. rubra var. commutata
 Hordeum jubatum
 H. jubatum var. caespitosum
 Lolium multiflorum
 L. perenne
 Michel's grass
 Poa ampla
 P. nemoralis
 P. palustris
 P. pratensis
 P. secunda
 P. stenantha
 Puccinellia distans
 Sitanion hystrix
 Stipa viridula

DOTHIDELLA ARISTIDAE (Schw.)

Ell. & Ev.
 Distichlis spicata
 D. stricta

EPICHLOË TYPHINA (Fr.) Tul.

Agropyron trachycaulum
 Elymus canadensis
 E. dahuricus
 Poa compressa
 P. secunda

ERYSIPHE GRAMINIS DC.

Agropyron inerme
 A. smithii
 A. spicatum
 A. subsecundum

ASCOMYCETES Cont.

ERYSIPHE GRAMINIS Cont.

Agropyron trachycaulum
 Agrostis exarata
 Bromus carinatus
 B. marginatus
 B. tectorum
 Dactylis glomerata
 Elymus canadensis
 E. condensatus
 E. junceus
 E. sibiricus
 Festuca idahoensis
 F. ovina
 F. rubra var. commutata
 Koeleria cristata
 Melica californica
 Poa arida
 P. canbyi
 P. compressa
 P. cusickii
 P. glaucifolia

ERYSIPHE GRAMINIS Cont.

Poa nemoralis
 P. nevadensis
 P. palustris
 P. pratensis
 P. scabrella
 P. secunda
 Polypogon monspeliensis

MYCOSPHAERELLA TULASNEI Jacz.

Poa pratensis

PHYLLACHORA SYLVATICA Sacc. & Speg.

Festuca rubra

PHYLLACHORA VULGATA Theiss. & Syd.

Muhlenbergia cuspidata

PHYLLACHORA sp.

Distichlis stricta

USTILAGINALES -- USTILAGINACEAE

SOROSPORIUM CONSANGUINEUM Ell.

& Ev.

Aristida longisetia

SOROSPORIUM GRANULOSUM Ell. & Tracy

Stipa comata

SOROSPORIUM SYNTHESMAE (Pk.)

Farl.

Panicum capillare

P. miliaceum

SPHACELOTHECA CRUENTA (Kühn)

A. Potter

Sorghum halepense

SPHACELOTHECA SORGI (Lk.) Clinton

Sorghum halepense

USTILAGO AVENAE (Cda.) Jens.

Arrhenatherum elatius

USTILAGO BULLATA Berk.

Agropyron dasystachyum

USTILAGO BULLATA Cont.

Agropyron trachycaulum
 Bromus anomalus
 B. carinatus
 B. catharticus
 B. ciliatus
 B. erectus
 B. japonicus
 B. marginatus
 B. mollis
 B. polyanthus
 B. racemosus
 B. rigidus
 B. rubens
 B. secalinus
 B. sibiricus
 B. tectorum
 B. tomentellus
 B. vulgaris
 Elymus canadensis
 E. glaucus
 E. junceus
 E. sibiricus
 Hordeum jubatum

USTILAGINALES -- USTILAGINACEAE Cont.

USTILAGO BULLATA Cont.

Hordeum jubatum var. *caespitosum*
H. nodosum

USTILAGO HORDEI Lagerh.

Elymus excelsus
E. glaucus

USTILAGO HYPODYTES (Schlecht.) Fr.

Agropyron amurense
A. cristatum
A. dasystachyum
A. inerme
A. repens
A. riparium
A. spicatum
Elymus canadensis
E. condensatus
E. dahuricus
E. dasystachys
E. excelsus
E. glaucus
E. sibiricus
Hordeum brevisubulatum
Melica harfordii
Oryzopsis hymenoides
Phalaris arundinacea
Phleum phleoides
Poa ampla
P. nevadensis
Secale cereale x *S. montanum*
Sitanion jubatum
Stipa comata
S. thurberiana
S. viridula

USTILAGO JACKSONII Zundel & Dunlap

Stipa lettermani

USTILAGO LONGISSIMA (Sow.) Tul.

Glyceria grandis

USTILAGO MACROSPORA Desm.

Elymus canadensis

USTILAGO MACROSPORA Cont.

Elymus condensatus

USTILAGO MULFORDIANA Ell. & Ev.

Festuca dertonensis
F. octoflora
F. pacifica

USTILAGO NEGLECTA Niessl

Setaria lutescens

USTILAGO RESIDUA Clinton

Danthonia californica

USTILAGO SITANII Fischer

Hordeum jubatum
H. jubatum var. *caespitosum*
Sitanion jubatum

USTILAGO STRIAEFORMIS (Westend.)

Niessl
Agropyron inerme
A. subsecundum
A. trachycaulum
Agrostis alba
A. castellana
A. palustris
A. stolonifera
Elymus canadensis
E. glaucus
Phleum pratense
Poa canbyi
P. pratensis
P. secunda

USTILAGO spp. (undetermined)^{12/}

Poa secunda
Stipa cernua
S. richardsoni
S. lettermani
S. speciosa
S. thurberiana

^{12/} Under investigation at Pullman, Wash.

USTILAGINALES -- TILLETIACEAE

TILLETIA AIRAE Blytt
Deschampsia danthonioides
D. elongata

TILLETIA ELYMI Diet. & Holw.
Elymus glaucus

TILLETIA FUSCA Ell. & Ev.
Festuca dertonensis
F. octoflora
F. pacifica

TILLETIA GUYOTIANA Hariot
Bromus mollis
B. racemosus

TILLETIA sp. 12/
Elymus canadensis

UROCYSTIS AGROPYRI (Preuss) Schroet.
Agropyron trachycaulum
Hordeum jubatum
Poa ampla

UREDINALES -- PUCCINIACEAE

PUCCINIA AMPHIGENA Diet.
Calamovilfa longifolia

PUCCINIA ANOMALA Rostr.
Hordeum spontaneum

PUCCINIA ARISTIDAE Tracy
Aristida longiseta
Distichlis stricta

PUCCINIA BARTHOLOMAEI Diet.
Bouteloua gracilis

PUCCINIA COCKERELLIANA Bethel
Festuca scabrella

PUCCINIA CORONATA Cda.
Agrostis castellana
A. tenuis
Avena fatua
A. hookeri
Beckmannia syzigachne
Calamagrostis canadensis
C. scribneri
Deschampsia caespitosa
Festuca elatior
Holcus lanatus
Lolium multiflorum
L. perenne

PUCCINIA CORONATA Cont.
Lolium remotum
L. subulatum
Phalaris arundinacea
Polypogon monspeliensis

PUCCINIA CRANDALLII Pam. & Hume
Festuca idahoensis
F. ovina
F. rubra
F. viridula

PUCCINIA CYNODONTIS Lacroix
Cynodon dactylon

PUCCINIA DISTICHLIDIS Ell. & Ev.
Spartina gracilis

PUCCINIA EATONIAE Arth.
Sphenopholis obtusata

PUCCINIA ELLISIANA Thüm.
Andropogon scoparius

PUCCINIA GLUMARUM (Schm.) Erikss.
& Henn.
Aegilops cylindrica
Agropyron albicans
A. caninum

UREDINALES -- PUCCINIACEAE Cont.

PUCCINIA GLUMARUM Cont.

Agropyron ciliare
 A. cristatum
 A. dasystachyum
 A. desertorum
 A. divaricatum
 A. griffithsii
 A. inerme
 A. panormitanum
 A. repens
 A. riparium
 A. smithii
 A. spicatum
 A. subsecundum
 A. trachycaulum
 A. trichophorum
 A. ugamicum
 Bromus anomalus
 B. carinatus
 B. ciliatus
 B. marginatus
 B. polyanthus
 B. purgans
 Elymus antarcticus
 E. arenarius
 E. canadensis
 E. condensatus
 E. condensatus var. pubens
 E. excelsus
 E. glaucus
 E. interruptus
 E. sabulosus
 E. salina
 E. sibiricus
 E. triticoides
 E. virescens
 E. virginicus
 Hordeum bulbosum
 H. jubatum
 H. jubatum var. caespitosum
 H. murinum
 H. nodosum
 Puccinellia lemmoni
 P. limosa
 P. nutkaensis
 P. nuttalliana

PUCCINIA GLUMARUM Cont.

Secale montanum
 Sitanion hansenii
 S. hystrix
 S. jubatum
 Stipa columbiana

PUCCINIA GRAMINIS Pers.

Agropyron albicans
 A. caninum
 A. cristatum
 A. dasystachyum
 A. desertorum
 A. elmeri
 A. griffithsii
 A. inerme
 A. riparium
 A. sibiricum
 A. smithii
 A. spicatum
 A. subsecundum
 A. trachycaulum
 A. trichophorum
 Agrostis exarata
 A. hallii
 A. tenuis
 Alopecurus arundinaceus
 Avena fatua
 Bromus carinatus
 B. ciliatus
 B. marginatus
 B. rigidus
 B. rubens
 B. sibiricus
 B. tectorum
 Cinna latifolia
 Dactylis glomerata
 Deschampsia caespitosa
 D. danthonioides
 D. elongata
 Elymus canadensis
 E. condensatus
 E. condensatus var. pubens
 E. dahuricus
 E. excelsus
 E. glaucus

UREDINALES -- PUCCINIACEAE Cont.

PUCCINIA GRAMINIS Cont.

Elymus interruptus
E. junceus
E. macounii
E. sibiricus
E. triticoides
Festuca californica
F. elatior
F. elatior var. *arundinacea*
F. idahoensis
F. megalura
F. rubra
F. subulata
Glyceria pauciflora
Hierochloë odorata
Hordeum brevisubulatum
H. jubatum
H. murinum
H. nodosum
Koeleria cristata
Melica aristata
Phalaris californica
P. minor
Phleum graecum
P. phleoides
P. pratense
Poa ampla
P. canbyi
P. cusickii
P. epilis
P. glaucifolia
P. interior
P. juncifolia
P. longifolia
P. nevadensis
P. scabrella
P. secunda
P. tibetica
P. sp.
Puccinellia distans
P. nuttalliana
Sitanion jubatum
Stipa comata
Trisetum canescens

PUCCINIA HORDEI Fekl.

Hordeum murinum

PUCCINIA KANSENSIS Ell. & Barth.

Buchloë dactyloides

PUCCINIA KOELERIAE Arth.

Koeleria cristata

PUCCINIA MAGNUSIANA Körn.

Phragmites communis

PUCCINIA MONTANENSIS Ell.

Agropyron ciliare
A. cristatum
A. dasystachyum
A. ferganense
A. inerme
A. repens
A. riparium
A. sibiricum
A. smithii
A. spicatum
A. subsecundum
A. trachycaulum
A. trichophorum
Elymus canadensis
E. canadensis var. *robustus*
E. condensatus
E. glaucus
E. interruptus
E. macounii
E. sibiricus
Hordeum brevisubulatum
H. jubatum

PUCCINIA PATTERSONIANA Arth.

Agropyron inerme
A. spicatum
Sitanion hansenii
S. hystrix
S. jubatum

PUCCINIA PERIDERMIOSPORA (Ell. & Tracy) Arth.

Spartina pectinata

UREDINALES -- PUCCINIACEAE Cont.

PUCCINIA POAE-SUETICAE (Westend.)

Jørstad
Poa alpina
P. ampla
P. annua
P. arida
P. bulbosa
P. canadensis
P. canbyi
P. compressa
P. curta
P. cusickii
P. epilis
P. gracillima
P. interior
P. juncifolia
P. longifolia
P. nemoralis
P. nevadensis
P. palustris
P. pratensis
P. scabrella
P. secunda
P. stenantha
P. sylvestris
P. tibetica
P. trivialis
P. vaseyochloa
Puccinellia nuttalliana

PUCCINIA RUBIGO-VERA (DC.) Wint.

Agropyron albicans
A. caninum
A. cristatum
A. dasystachyum
A. elmeri
A. hirsutum
A. inerme
A. riparium
A. sibiricum
A. smithii
A. spicatum
A. subsecundum
A. trachycaulum
A. trichophorum
Bromus carinatus

PUCCINIA RUBIGO-VERA Cont.

Bromus ciliatus
B. laevipes
B. lanuginosus
B. marginatus
B. mollis
B. polyanthus
B. rigidus
B. rubens
B. sibiricus
B. tectorum
Elymus canadensis
E. condensatus
E. condensatus var. *pubens*
E. excelsus
E. flavescens
E. glaucus
E. interruptus
E. junceus
E. macounii
E. salina
E. sibiricus
E. triticoides
E. virginicus
Hordeum brevisubulatum
H. jubatum
H. jubatum var. *caespitosum*
H. nodosum
Michel's grass
Poa ampla
P. canbyi
P. juncifolia
P. nevadensis
P. scabrella
P. secunda
Puccinellia distans
P. nuttalliana
Secale montanum
Sitanion hystrix
Trisetum spicatum

PUCCINIA SCABER (Ell. & Ev.) Barth.

Oryzopsis hymenoides
Stipa comata
S. occidentalis
S. thurberiana

UREDINALES -- PUCCINIACEAE Cont.

PUCCINIA SCABER Cont.

Stipa viridula

PUCCINIA SCHEDONNARDI Kellerm.

& Sw.

Schedonnardus paniculatus

PUCCINIA SESSILIS Schneid.

Phalaris arundinacea

PUCCINIA SIMULANS (Pk.) Barth.

Sporobolus cryptandrus

PUCCINIA STIPAE Arth.

Stipa comata

S. richardsoni

PUCCINIA VEXANS Farl.

Bouteloua curtipendula

UROMYCES DACTYLIDIS Oth

Poa secunda

URMYCES JACKSONII Arth. & Fromme

Deschampsia elongata

FUNGI IMPERFECTI- MELANCONIALES

COLLETOTRICHUM GRAMINICOLUM (Ces.)

Wils.

Agropyron trachycaulum

Avena fatua

A. hookeri

Calamagrostis canadensis

*C. inexpansa**C. rubescens*

Digitaria sanguinalis

Lolium multiflorum

*L. perenne**Poa pratensis*

COLLETOTRICHUM GRAMINICOLUM Cont.

Schizachne purpurascens

Sporobolus heterolepis

SEPTOGLOEUM OXYSPORUM Sacc., Bomm.,

& Rouss.

Agropyron trachycaulum

*Agrostis alba**A. scabra**Elymus condensatus**E. triticoides*FUNGI IMPERFECTI -- MONILIALES

CERCOSPORA FUSIMACULANS Atk.

Panicum virgatum

CERCOSPORA SEMINALIS Ell. & Ev.

Buchloë dactyloides

CERCOSPORELLA SUBULATA Sprague

*Deschampsia caespitosa**Melica bulbosa*

CLADOSPORIUM HERBARUM (Pers.) Lk.

*Agropyron smithii**Calamovilfa longifolia**Poa compressa*

CURVULARIA GENICULATA (Tracy &

Earle) Boedijn

*Bouteloua gracilis**Brachypodium sylvaticum**Buchloë dactyloides**Digitaria sanguinalis**Echinochloa crusgalli**Elymus junceus**Koeleria cristata**Muhlenbergia japonica**Panicum virgatum**Poa compressa**Setaria viridis**Sporobolus neglectus*

FUNGI IMPERFECTI -- MONILIALES Cont.

CURVULARIA GENICULATA Cont.

Stipa comata

S. viridula

CURVULARIA TRIFOLII (Kauff.)

Boedijn

Digitaria sanguinalis

Echinochloa crusgalli

FUSARIUM AVENACEUM (Fr.) Sacc.

Poa compressa

FUSARIUM CULMORUM (W.G.Sm.) Sacc.

Echinochloa crusgalli

FUSARIUM GRAMINEARUM Schwabe

Agropyron cristatum

Poa pratensis

FUSARIUM MONILIFORME Sheld.

Setaria viridis

FUSARIUM POAE (Pk.) Wr.

Bouteloua gracilis

FUSARIUM SCIRPI Lamb. & Fautr.

Agropyron caninum

FUSARIUM SCIRPI var. ACUMINATUM

(Ell. & Ev.) Wr.

Agropyron ciliare

A. cristatum

A. elongatum

A. repens

A. riparium

A. sibiricum

A. smithii

A. subsecundum

A. trachycaulum

Andropogon furcatus

A. hallii

Bromus erectus

Bouteloua curtipendula

B. gracilis

Brachypodium sylvaticum

FUSARIUM SCIRPI var. ACUMINATUM Cont.

Bromus inermis

B. japonicus

B. tectorum

B. tomentellus

Buchloë dactyloides

Calamovilfa longifolia

Chloris virgata

Dactylis glomerata

Digitaria sanguinalis

Distichlis stricta

Echinochloa crusgalli

Elymus canadensis

E. dahuricus

E. glaucus

E. interruptus

E. junceus

E. macounii

E. triticoides

Eragrostis curvula

E. pilosa

Festuca elatior

F. ovina

F. rubra

F. rubra commutata

Hilaria jamesii

H. mutica

Hordeum bulbosum

H. jubatum

Koeleria cristata

Oryzopsis hymenoides

Muhlenbergia racemosa

Panicum capillare

P. dichotomiflorum

P. miliaceum

P. virgatum

Phalaris tuberosa

Phleum phleoides

P. pratense

Poa annua

P. arida

P. pratensis

Setaria italica

S. viridis

Sorghum vulgare

FUNGI IMPERFECTI -- MONILIALES Cont.

FUSARIUM SCIRPI var. ACUMINATUM
Cont.

Sorghum vulgare sudanense
Stipa columbiana
S. comata
S. viridula

FUSARIUM SCIRPI var. COMPACTUM Wr.
Agropyron elongatum
Hordeum jubatumFUSARIUM SPOROTRICHOIDES Sherb.
Bouteloua gracilisFUSARIUM sp.
Poa annuaHELMINTHOSPORIUM HALODES Drechs.
Agropyron repens
Muhlenbergia japonica
Setaria viridisHELMINTHOSPORIUM INCONSPICUUM
Ell. & Ev. var. BUCHLOES
Ell. & Ev. Nom. Nud.
Buchloë dactyloidesHELMINTHOSPORIUM MONOCERAS Drechsl.
Setaria viridisHELMINTHOSPORIUM SATIVUM Pam.,
King, & Bak.

Agropyron amurense
A. cristatum
A. dasystachyum
A. elongatum
A. intermedium
A. repens
A. smithii
A. sibiricum
A. subsecundum
A. trachycaulum
Ammophila arenaria
Andropogon hallii
Avena fatua
Bouteloua curtipendula
B. gracilis

HELMINTHOSPORIUM SATIVUM Cont.

Bromus carinatus
B. inermis
B. madritensis
B. tectorum
B. tomentellus
Calamovilfa longifolia
Dactylis glomerata
Digitaria sanguinalis
Echinochloa crusgalli
Elymus canadensis
E. dahuricus
E. excelsus
E. junceus
E. interruptus
E. sibiricus
Eragrostis curvula
E. pilosa
Festuca octoflora
Hordeum brevisubulatum
H. bulbosum
H. jubatum
Oryzopsis hymenoides
Panicum capillare
P. virgatum
Poa bulbosa
P. palustris
P. pratensis
P. secunda
Setaria italica
S. lutescens
S. viridis
Sorghum vulgare
S. vulgare sudanense
Stipa baicalensis
S. comata
S. sibirica
S. spartea
S. viridula

HELMINTHOSPORIUM TURCICUM Pass.

Setaria viridis
Sorghum vulgare sudanense

HELMINTHOSPORIUM VAGANS Drechsl.

Poa compressa
P. pratensis

FUNGI IMPERFECTI -- MONILIALES Cont.

HELMINTHOSPORIUM sp.

Bromus inermis
 Hierochloa odorata
 Panicum capillare
 P. flexile
 Stipa williamsii

HETEROSPORIUM AVENAE Oud.

Elymus condensatus

HETEROSPORIUM PHLEI Gregory

Phleum phleoides
 P. pratense

MASTIGOSPORIUM RUBRICCSUM (Dearn.

& Barth.) Sprague
 Calamagrostis canadensis
 Dactylis glomerata

PIRICULARIA GRISEA (Cke.) Sacc.

Scolochloa (Fluminea) festucacea
 Setaria viridis

RHYNCHOSPORIUM CRTHOSPORUM

Caldwell
 Alopecurus pratensis
 Calamagrostis canadensis

RHYNCHOSPORIUM SECALIS (Oud.)

J. J. Davis
 Agropyron repens
 A. trachycaulum
 Bromus carinatus
 B. inermis
 B. marginatus
 Elymus canadensis
 Secale montanum

SCOLECOTRICHUM GRAMINIS Fekl.

Agropyron caninum
 A. dasystachyum
 A. griffithsii
 A. repens
 A. smithii
 A. spicatum
 A. subsecundum
 A. trachycaulum

SCOLECOTRICHUM GRAMINIS Cont.

Agrostis alba
 A. exarata
 Alopecurus aequalis
 A. pratensis
 Arrhenatherum elatius
 Beckmannia syzigachne
 Bromus carinatus
 B. catharticus
 B. marginatus
 B. vulgaris
 Dactylis glomerata
 Deschampsia elongata
 Elymus canadensis
 E. condensatus
 E. flavescens
 E. glaucus
 E. sibiricus
 Glyceria elata
 Hordeum jubatum
 H. jubatum var. caespitosum
 H. nodosum
 Koeleria cristata
 Melica geyeri
 Michel's grass
 Oryzopsis hymenoides
 Phleum pratense
 Poa ampla
 P. canbyi
 P. compressa
 P. epilis
 P. nevadensis
 P. pratensis
 P. secunda
 Secale montanum
 Sitanion hansenii
 S. hystrix
 Stipa columbiana
 S. comata
 S. lettermani
 S. occidentalis
 S. thurberiana
 S. viridula
 S. williamsii
 Trisetum canescens
 T. montanum

FUNGI IMPERFECTI -- SPHAEROPSIDALES

ASCOCHYTA AGROPYRINA (Fairm.)

Trott.

Agropyron caninum

A. cristatum

A. subsecundum

A. trachycaulum

A. trichophorum

Elymus canadensis

E. excelsus

E. virginicus

ASCOCHYTA AVENAE (Petr.)

Sprague & Johnson

Avena fatua

ASCOCHYTA ELYMI Tehon & Daniels

Elymus canadensis

ASCOCHYTA GRAMINICOLA Sacc.

Elymus macounii

Festuca rubra

Hierochloë odorata

Poa pratensis

Stipa viridula

ASCOCHYTA GRAMINICOLA var.

BRACHYPODII Trail

Elymus macounii

ASCOCHYTA GRAMINICOLA var.

DIEDICKEANA Baudys & Picb.

Bromus inermis

ASCOCHYTA LOLII (Zimm.)

Sprague & Johnson

Lolium perenne

ASCOCHYTA (Septoria) SPARTINAE

Trel.

Spartina pectinata

ASCOCHYTA STIPAE Died.

Sporobolus airoides

ASCOCHYTA SP.^{13/}

Buchloë dactyloides

Panicum virgatum

Phleum pratense

DARLUCA FILUM (Biv.) Cast.

Puccinia glumarum

P. graminis

P. montanensis

P. rubigo-vera

P. crandallii

P. distichlidis

P. hordei

P. koeleriae

P. poae-sudeticae

P. scaber

P. vexans

DILOPHOSPORA ALOPECURI (Fr.) Fr.

Agropyron trachycaulum

Melica bulbosa

Sitanion jubatum

HENDERSONIA CALAMOVILFAE Petr.

Calamagrostis canadensis

Calamovilfa gigantea

C. longifolia

HENDERSONIA CRASTOPHILA Sacc.

Poa compressa

HENDERSONIA SIMPLEX Schroet.

Sporobolus airoides

S. asper

HENDERSONIA sp.

Bromus vulgaris

Poa pratensis

Schizachne purpurascens

MACROPHOMINA PHASEOLI (Maubl.) Ashby

Arrhenatherum elatius

Brachypodium sylvaticum

^{13/} Several species of Ascochyta, Phyllosticta, Septoria, and Stagonospora are under investigation at Mandan, N. Dak.

FUNGI IMPERFECTI -- SPHAEROPSIDALES Cont.

MACROPHOMINA PHASEOLI (Maubl.)

Ashby Cont.

Elymus dasystachys

PHOMA (TERRESTRIS Hansen)

Agropyron smithii

PHYLLOSTICTA SORGHINA Sacc.

Setaria viridis

PHYLLOSTICTA sp.

*Andropogon furcatus**Schizachne purpurascens*

SELENOPHOMA BROMIGENA (Sacc.)

Sprague & Johnson

Bromus inermis

SELENOPHOMA DONACIS (Pass.)

Sprague & Johnson

*Calamovilfa longifolia**Elymus condensatus**E. flavescens**Festuca ovina**Panicum virgatum**Phalaris arundinacea**Stipa comata**S. richardsoni**S. viridula*

SELENOPHOMA DONACIS var.

*Agrostis scabra**Bouteloua curtipendula**Calamagrostis scribneri**Deschampsia atropurpurea**D. caespitosa**D. elongata**Festuca ovina* var. *brachyphylla**F. rubra**Hesperochloa* (*Festuca*) *kingii**Trisetum spicatum*

SELENOPHOMA DONACIS var.

*Agropyron inerme**Elymus glaucus**Stipa richardsoni*

SELENOPHOMA DONACIS var.

*Agropyron smithii**A. spicatum**A. trachycaulum**Aristida longiseta**Arrhenatherum elatius**Dactylis glomerata**Elymus giganteus**E. junceus**Festuca idahoensis**Koeleria cristata**Oryzopsis hymenoides**Poa alpina**P. ampla**P. arctica**P. arida**P. compressa**P. epilix**P. interior**P. pratensis**P. secunda**Sitanion hystrix*

SELENOPHOMA sp.

*Sitanion hanseni**S. hystrix*

SEPTORIA BROMI Sacc.

*Bromus japonicus**B. secalinus*

SEPTORIA CALAMAGROSTIDIS (Lib.)

Sacc.f. *KOELERIAE* (Cocc. &

Mor.) Sprague

Koeleria cristata

SEPTORIA CALAMOVILFAE Petr.

Calamovilfa longifolia

SEPTORIA ELYMI Ell. & Ev.

*Agropyron repens**A. smithii**A. trachycaulum**Elymus canadensis*

FUNGI IMPERFECTI -- SPHAEROPSIDALES Cont.

SEPTORIA INFUSCANS (Ell. & Ev.)

Sprague
Elymus condensatus

SEPTORIA MACROPCDA Pass.

Poa annua

SEPTORIA MACROPCDA var. SEPTULATA

(Gz. Fr.) Sprague
Poa pratensis

SEPTORIA MACROPCDA var. GRANDIS

Sprague
Poa secunda

SEPTORIA NODORUM Berk.

Agropyron trachycaulum
Elymus junceus
Glyceria elata
G. pauciflora
Poa palustris

SEPTORIA OUDEMANSII Sacc.

Poa canbyi
P. compressa
P. nevadensis
P. pratensis

SEPTORIA PACIFICA Sprague

Elymus condensatus

SEPTORIA PASSERINII Sacc.

Hordeum jubatum
H. nodosum

SEPTORIA SECALIS Prill. & Delacr.

var. STIPAE Sprague
Agrostis scabra
Stipa viridula

SEPTORIA TENELLA Cke. & Ell.

Festuca idahoensis

SEPTORIA TENELLA Cont.

Festuca octoflora
F. ovina
F. rubra
F. rubra var. commutata

SEPTORIA TRISETI Speg.

Agrostis castellana
A. tenuis

SEPTORIA sp.

Agropyron caninum
A. smithii
A. trachycaulum
Elymus arenarius
E. canadensis
E. macounii
Muhlenbergia mexicana

SPHAEROPSIS sp.

Poa pratensis

STAGONOSPORA ARENARIA Sacc.

Agropyron trachycaulum
Cinna latifolia
Elymus triticoides
Oryzopsis hymenoides
Phalaris arundinacea
Scolochloa (Fluminea) festucacea

STAGONOSPORA sp.

Glyceria striata
Poa pratensis
Stipa viridula

WOJNOWICIA GRAMINIS (McAlp.) Sacc.

& D. Sacc.
Agropyron repens
A. smithii
Dactylis glomerata
Distichlis stricta
Poa pratensis

FUNGI IMPERFECTI -- MYCELIA STERILIA

RHIZOCTONIA SOLANI Kühn

Agropyron ciliare
 A. cristatum
 A. elongatum
 A. repens
 A. sibiricum
 A. smithii
 A. trachycaulum
 A. trichophorum
 Agrostis alba
 Bouteloua curtipendula
 B. gracilis
 Bromus carinatus
 B. inermis
 Buchloë dactyloides
 Echinochloa crusgalli
 Elymus canadensis
 E. junceus
 Eragrostis curvula
 Festuca octoflora
 F. rubra
 F. rubra commutata
 Hordeum brevisubulatum

RHIZOCTONIA SOLANI Cont.

Hordeum jubatum
 Koeleria cristata
 Lolium multiflorum
 Oryzopsis hymenoides
 Muhlenbergia racemosa
 Panicum capillare
 Phleum pratense
 Poa bulbosa
 P. palustris
 P. pratensis
 Setaria viridis
 Stipa comata
 S. sibirica
 S. viridula

SCLEROTIUM sp.

Agropyron dasystachyum
 Bromus inermis
 Stipa viridula

SCLEROTIUM RHIZODES Auersw.

Agrostis alba

CAUSE UNDETERMINED

BENDS

Agropyron amurense
 A. cristatum
 A. dasystachyum
 A. inerme
 A. spicatum
 A. trachycaulum
 Bromus inermis
 Dactylis glomerata
 Danthonia californica
 D. californica var. americana
 D. unispicata
 Elymus antarcticus
 E. canadensis
 E. condensatus
 E. excelsus
 E. glaucus
 E. junceus
 Festuca elatior
 F. elatior var. arundinacea
 F. idahoensis

BENDS Cont.

Festuca ovina
 F. pacifica
 F. thurberi
 Hordeum brevisubulatum
 Koeleria cristata
 Oryzopsis hymenoides
 Phleum pratense
 Poa canbyi
 P. nemoralis
 P. nevadensis
 P. secunda
 Sporobolus airoides
 Stipa lettermani

SEEDLING BLIGHT

Agropyron cristatum
 A. inerme
 A. dasystachyum
 A. spicatum
 Elymus glaucus

