

CEREAL RUST BULLETIN

Report No.: 1
Date: April 22, 1975

From:
CEREAL RUST LABORATORY
AGRICULTURAL RESEARCH SERVICE (ARS)
U. S. DEPARTMENT OF AGRICULTURE
UNIVERSITY OF MINNESOTA, ST. PAUL 55101

Issued By:
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U. S. DEPARTMENT OF AGRICULTURE
(In cooperation with ARS and the
Minnesota Agricultural Experiment Station)

The maturity of small grain cereals is a week or more later than normal in Texas and southern Oklahoma. Fall moisture was good and there was an increase in planted acreage. Moisture is now adequate in north-central Texas, but west of Wichita Falls moisture is barely adequate. South Texas has a moisture shortage. Crops in north-central Texas suffered from late spring freezes. Some yellowing of the crop due to nitrogen deficiency was observed and greenbug damage was found in north-central Texas and southwestern Oklahoma. Nevertheless, crop prospects last week were above normal as the crop was starting to head. In the southeastern states of Georgia, Florida, and Alabama, the acreage of small grains was decreased. Moisture was adequate to excessive and maturity was near normal. In the Mississippi River Delta, wheat maturity is a week or more late and moisture is adequate.

Wheat stem rust.--Stem rust was present in minor amounts and was confined to nurseries and trap plots. Stem rust was observed at Robstown in southern Texas; Alexander, Louisiana; Quincy, Florida; Raymond and Bay St. Louis, Mississippi; and Rohwer, Arkansas. These were all spreads from an earlier infection in the plot that had been present for at least 45 days. A few recent infections were observed at Temple and Beeville, Texas. This is much less stem rust than normal for this time of year in the southern states and may, in part, be related to an early fall freeze in Texas that killed the top growth in November. A fall freeze also eliminated stem rust in the area north of Mexico City. No stem rust was found in the Mexico City area during the early spring (de Leon). Traces of stem rust are currently present in the Yaqui Valley of Mexico (Mattson).

Wheat leaf rust.--Leaf rust was less severe than in recent years in the southern states. A few heavily infected fields were observed in central and north-central Texas. The major southern soft red winter wheat varieties were only lightly rusted in the southeastern states of Alabama, Georgia, and Florida. Virulence for Blueboy II, Agent, and Transfer exists in Texas and Louisiana.

Wheat stripe rust.--One observed commercial field was heavily infected with stripe rust east of Denton, Texas near Navo. Losses in this field will be moderate.

Oat stem rust.--Stem rust was observed in plots only at three locations, Beeville, Texas; Perry Foundation near Robstown, Texas (Browning's plots); and at Gainesville, Florida. Stem rust is also present at Temple, Texas (McDaniel). Oat stem rust was also reported in the Yaqui Valley of Mexico (Brennen) in trace amounts.

Oat crown rust.--Crown rust was present in trace amounts along the Gulf Coast in commercial fields. It was severe in plots from Robstown, Texas (Browning) to Baton Rouge, Louisiana. Florida 501 was rusted in Florida. TAM-0-301, TAM-0-312, Coker 227, and Coker 234 were from highly to moderately resistant in all locations.

Barley stem and leaf rusts.--No stem rust was observed on barley. Leaf rust was generally light and scattered in plots. A few lines in nurseries were severely rusted in eastern Texas, Louisiana, and in the Florida panhandle. No commercial fields of barley were observed.

~~Rye stem and leaf rusts.~~ -- No stem rust was observed on rye. Leaf rust varied from light to moderate ~~with the heaviest infections observed in Florida.~~

Southern states

Other diseases

Found

Wheat: Septoria nodorum was severe in some fields in the southern states, but overall was less severe than in 1974.

but ... dry ...

Septoria tritici was light to moderate in fields from the Mississippi Delta area westward.

Powdery mildew was moderate to severe during the early spring throughout most of the South, but now is generally light to moderate.

Oats: Septoria foliage blight was moderate in the southern states. A few scattered areas of oat red leaf were also observed.

Barley: Helminthosporium was severe on barley in the southeastern states. Barley yellow dwarf occurs in scattered areas throughout many of the southern nurseries.

Rye: Scald (Rhynchosporium secalis?) was light to severe in the southern states, especially within 100 miles of the Gulf Coast.

CEREAL RUST BULLETIN

Report No.: 2
Date: May 20, 1975

CEREAL RUST LABORATORY
AGRICULTURAL RESEARCH SERVICE (ARS)
U. S. DEPARTMENT OF AGRICULTURE
UNIVERSITY OF MINNESOTA, ST. PAUL 55101

Issued By:
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U. S. DEPARTMENT OF AGRICULTURE
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Crop maturity is erratic throughout the Great Plains. Generally, wheat is one week later than normal from northern Texas (milk to soft dough stage) to north-central Kansas (late boot to heading). Most of the spring cereals were planted two weeks late in Minnesota and the Dakota's.

Wheat stem rust.--Stem rust has spread little since the last report. Severities in nurseries at Beeville, Texas reached 90% (Gilmore), and some rust has been reported at Marianna, Florida (Barnett, 4/25); Tifton, Georgia (Morey, 4/17); Laurinburg, North Carolina (Newton, 5/6); Alexandria, Louisiana (Tipton, 5/9); and Griffin, Georgia (Cunfer, 5/14). With warmer temperatures and scattered rains a rapid spread and northward movement of rust is expected. However, even though the crop is late the amount of inoculum apparently is less than normal. Races have been identified from the collections received before April 23 as follows:

<u>Location</u>	<u>No. of collections</u>	<u>Wheat stem rust CRL races (no. of isolates)</u>
Rohwer, AR	1	TNM(3)
Quincy, FL	5	HKC(6), MBC(6), RCR(3)
Tifton, GA	1	RCR(1)
Alexandria, LA	4	QFB(3), RPQ(3), TLM(3), TNM(3)
Bay St. Louis, MS	3	QCB(9)
Raymond, MS	1	TNM(3)
Robstown, TX	4	QCB(12)
Ciano, Mexico	8	GJH(1), RKQ(3), RSH(1), RTQ(16), TDR(1)

Races TNM, TLM, and QFB, the most common races in 1974, were identified only from Louisiana, Mississippi, and Arkansas. Three new combinations have been tentatively identified: race group 17-29-HKC, 15-TDR, and ?-GJH. None of these races are especially virulent.

Wheat leaf rust.--Leaf rust is light in Kansas, generally with a trace on flag leaves (Eversmeyer). Leaf rust is also present in trace amounts in the Pacific Northwest (Line) and North Carolina (Newton, 5/6). Leaf rust is moderate on advanced wheat breeding lines in southern Alabama (Lyle), and heavy in nurseries in east-central Georgia (Seckinser) and Louisiana (Tipton). At the latter location, rust was virulent on Oasis, Arthur 71, and Abe. Losses will be much less than in 1974 in the winter wheats assuming normal weather.

Wheat stripe rust.--Stripe rust is severe on the variety Yamhill in the Mt. Vernon area in Washington. Elsewhere in Washington stripe rust is light to moderate, and losses should be light providing temperatures increase as normal (Line).

Oat stem rust.--Oat stem rust evidently overwintered in the area south and west of San Antonio, Texas. Stem rust in this area at crop maturity was light but present in most fields (McDaniel). No oat stem rust has been found north of Temple, Texas (Gardenhire, McDaniel). New reports of stem rust since the last Bulletin are from Quincy, Florida (Barnett, 4/28); and Bexar, Frio, Kendall, Lavaca, Medina, and Uvalde Counties in Texas (McDaniel, 4/28 to 5/9). Races identified from collections received prior to April 20 are as follows:

<u>Location</u>	<u>No. of collections</u>	<u>Oat stem rust races (number of isolates)</u>
Gainesville, FL	2	31(3), 77(3)
Beeville, TX	3	31(6), 61(1)
Robstown, TX	9	31(21), 61(6)
Temple, TX	5	61(14)
Ciano, Mexico	2	31(6)

Thus, oat stem rust inoculum is greater than in 1974 in south Texas; however, the most common race in north Texas (61) is avirulent on most of the commercial varieties of the north-central states.

Oat crown rust.--Crown rust was severe in south Texas on susceptible varieties (McDaniel). The newer varieties derived from Avena sterilis crosses were resistant (Coker 234, TAM-0-301, and TAM-0-312). Crown rust has not developed north of Dallas (Gardenhire, McDaniel).

Barley stem and leaf rusts.--No reports of stem rust in 1975 have been received to date. Leaf rust is scattered in some plots in North Carolina with severities of 50% on some lines (Newton, 5/6).

Barberry rust.--The first aecial collections were made in the following counties: Smyth, Virginia (Saunders, 5/2); Monroe, West Virginia (Bostic, 5/13); and Wythe, West Virginia (Callehan, 5/13). It is important to note that this source of inoculum is 150 miles farther north than the northern-most reports of uredial sources at that time.

Other diseases.--

Wheat: Septoria nodorum became severe in nurseries at Atmore, Alabama (Romig).

Septoria tritici is moderate in north-central Oklahoma (Gough); and light to moderate on the lower half of the plants throughout central Kansas (Eversmeyer). A few fields in this latter area will be damaged (Willis). Septoria was light to moderate in Nebraska (Riesselman).

Powdery mildew is causing light losses in Kansas (Eversmeyer), and severities of 20-40% were observed in North Carolina on Abe, Arthur, and Arthur 71 (Newton).

Soil borne mosaic was severe in southern Kansas early in the spring. As temperatures have warmed, symptoms have almost disappeared; however, there will be some losses.

Wheat streak mosaic is of minor importance in Kansas and will not cause severe losses as it did in 1974 (Eversmeyer).

Cephalosporium stripe is light to moderate in central Kansas (Willis).

Rye stem and leaf rusts.--Stem rust was found at Laurinburg, North Carolina (Newton, 5/17). Rye leaf rust is light in North Carolina (Newton, 5/6), and at Tifton, Georgia (Cunfer, 4/23).

CEREAL RUST BULLETIN

Report No.: 3
Date: June 3, 1975

From:
CEREAL RUST LABORATORY
AGRICULTURAL RESEARCH SERVICE (ARS)
U. S. DEPARTMENT OF AGRICULTURE
UNIVERSITY OF MINNESOTA, ST. PAUL 55101

Issued By:
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Recent warm temperatures resulted in a rapid advance of the crop growth stage and of planting during the past 2 weeks. Wheat harvest had started in north-central Texas until halted by heavy rains. Water is standing in some southern Oklahoma and north-central Texas fields. Drought continues to be a problem in the Texas and Oklahoma panhandles, eastern Colorado, and adjacent Kansas. A few local areas in Kansas, Oklahoma, and Texas have been damaged by hail. Wheat in southern Kansas is in the soft dough stage and has reached full berry at Manhattan.

Wheat stem rust.--As predicted there has been a rapid spread of stem rust; fortunately, severities are generally very light. Severities in nurseries at Temple, Texas were as high as 20% at the dough stages (5/13, Gilmore). Stem rust was first reported in southern Kansas on May 22 (Romig, Eversmeyer). Stem rust is now present in trace amounts in commercial fields in south-central Kansas and north-central Oklahoma.

The greatest severity noted in commercial fields was 5% in Baylor County, Texas (Eversmeyer) and 10% in Canadian County, Oklahoma (Goodfellow and Fitchett). Only a few stem rust collections were received in late April and early May; hence, the few additional isolates identified in the past 2 weeks were:

<u>Location</u>	<u>No. of collections</u>	<u>Wheat stem rust CRL races (no. of isolates)</u>
Quincy, FL	1	TLM (1), HDC (1)
Tifton, GA	2	RKQ (1), RTQ (2), RCR (3)
Ciano, Mexico	8	RKQ (8), RTQ (16)

(See Report No. 2 for earlier identifications)

Wheat leaf rust.--Leaf rust increased rapidly during the past 2 weeks. Severities of 60-70% have been reported in a few Kansas fields, although generally severities are less than 30%. Severities of 30-50% are common in late fields in southern Oklahoma and north-central Texas. A large number of leaf rust uredospores were trapped by volumetric samplers at Ames, Iowa during late May (Wallin). Traces of leaf rust are present in southern Illinois (5/27, Komanetsky) and on both spring and winter wheats at St. Paul, Minnesota. Leaf rust is present in east-central Nebraska (5/27, Riesselman). At St. Paul varieties with Lr9 and Lr24 are resistant at this time. A continued rapid spread of leaf rust is expected.

Wheat stripe rust.--Stripe rust is normally of minor importance during warm weather. However, a single pustule was found in a field of soft red winter wheat near Burns, Kansas on May 27 (Eversmeyer).

Oat stem rust.--Few oats are grown in Oklahoma and Kansas; thus, the next major disease increase will be reported in Nebraska and Iowa in late June or early July. Stem rust was reported in the additional Texas Counties of Brazos (5/20) and Bosque (5/17) (McDaniel), and Grayson and Collin (5/28, Eversmeyer). Severity in the Collin County field was 10%. Two pustules were found on an entry of the Uniform Rust Nursery at Centre County, Pennsylvania (5/29, Keim). These were probably a spread from barberry. The following collections have been identified since the last issue of the Cereal Rust Bulletin:

<u>Location</u>	<u>No. of collections</u>	<u>Oat stem rust races (number of isolates)</u>		
Uvalde, TX	30	2 (1),	31 (25),	61 (57)
Giddings, TX	8		31 (15),	61 (4), 77 (5)
Bastrop, TX	1			61 (2)
Medina Co., TX	2	2 (1),		61 (3)
College Station, TX	6		31 (9),	61 (9)

Oat crown rust.--Aecia had appeared on buckthorn in Dane, Racine (Bennett), and Rock Counties in Wisconsin and in the buckthorn nursery at St. Paul, Minnesota by late May. Infections could be present on oats by the end of the week.

Barley stem rust.--Stem rust was present on barley in Lancaster County, Virginia (5/22, Tate), 1% severity and 100% prevalence. This is 100 miles farther north than the nearest reported stem rust on wheat. Stem rust was also reported on barley in Sumner County in south-central Kansas (5/30, Goodfellow and Fitchett). In this collection there was an old infection and several younger pustules, indicating initial infection 20 days previously.

Barley leaf rust.--Leaf rust was light on barley in eastern Virginia (Tate). Leaf rust is severe on Barsoy in the nurseries at Blacksburg, Virginia (5/27, Roane).

Rye stem and leaf rusts.--Traces of rye stem rust were found at Griffin, Georgia on May 23 (Cunfer). No additional reports of leaf rust have been received in the past 2 weeks.

Barberry rust.--Aecial collections were submitted from the following additional counties in Virginia: Carroll (5/21, Callahan), Montgomery (5/19, Jones), and Russell and Tazewell (5/27, Saunders). In West Virginia an aecial collection was submitted from Greenbrier County (5/23, Bostic). A number of aecial collections were submitted from the following Wisconsin counties: Dane, Jefferson, Manitowoc, and Racine (5/21-5/29, Line). An aecial collection was also submitted from Huntingdon County, Pennsylvania (5/22, Snelbaker). Pycnia was reported on barberry in Stearns County, Minnesota (5/28, Laudon). Spreads were noted to oats in Pennsylvania (see oat stem rust) and to orchard grass in West Virginia, where several heavily infected stems were found within 2 feet of a barberry bush (5/27, Bostic and Taylor).

Other diseases.--

Wheat: Septoria tritici is moderate in north-central Oklahoma and south-central Kansas (Eversmeyer). On resistant lines (Oasis), it is as high as 30% on mid-leaves and 2-4% on flag leaves at Stillwater, Oklahoma (Gough). Light to moderate amounts were reported in southeast and eastern Nebraska (Riesselman).

Traces of soil-borne mosaic are still visible in south-central Kansas (Eversmeyer). Wheat streak mosaic is present in scattered fields in the Hugoton-Dodge City, Kansas area (Eversmeyer). Scattered outbreaks were also reported in Banner, Kimball, and Keith Counties in Nebraska (Brakke, Kerr, Lane, Langenberg).

Powdery mildew is common on winter wheat at St. Paul, Minnesota.

A possible infection of wheat by Cephalosporium gramineum stripe on wheat was observed at Blacksburg, Virginia (Roane).

Barley: Net blotch, spot blotch, and scald are severe at Blacksburg, Virginia in nurseries (Roane). Scald and Septoria passerinii were severe in the nursery at Warsaw in eastern Virginia (Roane).

CEREAL RUST BULLETIN

Report No.: 4
Date: June 17, 1975

From:
CEREAL RUST LABORATORY
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U. S. DEPARTMENT OF AGRICULTURE
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Frequent wet weather delayed harvest during the past 2 weeks. Crop maturity varies from a week late in northern Kansas to 2 weeks late in southern Kansas. Grain is ripe in northern Texas and southern Oklahoma and is being harvested as weather permits. Some lodging has occurred due to wind and rain from southern Kansas southward. Spring sown cereals vary from jointing to heading in eastern Nebraska, western Iowa, and southern Minnesota. Moisture is currently adequate in most of the Great Plains.

Wheat stem rust.--Stem rust has been found across central and eastern Kansas. Trap plots of McNair 701 in Kansas had the following severities: Pratt, 10% (Deihl, 6/5); Wellington, 30% (6/5); Mankato, 5% (6/12); Labette Co., 60% (Eversmeyer & Kramer, 6/5); Manhattan, 20% (Eversmeyer, 6/12). Commercial fields in Kansas with severities as high as trace-10% in Johnson Co., trace-3% in Doniphan and Atchison Counties (Hamon); trace-5% in Chautauqua and Reno Counties, trace-10% in Greenwood Co. (Porterfield); and 2% in Douglas Co. (Eversmeyer) were reported. Stem rust should not result in any losses in most Kansas fields. In Lafayette, Indiana 10% severity was observed on McNair 701 (Shaner, 6/12). Stem rust was present in centers in plots at Amelia, Warsaw, and Manassas, Virginia (Roane) and Monroe County, West Virginia (Bostic, 6/10). Stem rust was found in a trap plot of McNair 701 at Rosemount, Minnesota on June 11. Three pustules were found in approximately 10 feet of row. Pustule age and weather conditions indicate that this infection most likely occurred on May 23. Spreads from these infections are now sporulating.

Traces of stem rust have been reported on Agent, Sage, and Centurk; in all cases these varieties were in plots near or adjacent to plots of McNair 701. Race survey results do not indicate any hazard for these varieties among cultures identified at this time.

Preliminary results of the 1975 wheat stem rust race survey (6/16/75).

Location	No. of collections	Number of isolates of each race														
		15				151		43	17-29		56	11-32-113				
		TNM	TLM	TDM	TDR	QCB	QFB	GJH	HDC	HKC	MBC	RSH	RCR	RPQ	RKQ	RTQ
Arkansas	1	3														
Florida	6		1						1	6	5		4			
Georgia	4					1							3		1	2
Louisiana	7	3	5			1	3							5		
Mississippi	4	3				9										
South Texas	13	4		21		12							*			
Ciano, Mex.	15				1			1				1			11	30

* 1 isolate RHR.

Wheat leaf rust.--Leaf rust is present in trace amounts in Missouri, Ohio, South Dakota, Minnesota, and Wisconsin. Leaf rust has increased rapidly in Nebraska with severities in commercial fields in Perkins County of southwestern Nebraska, 5% (Baker, 6/3) at flowering, and in eastern Nebraska and western Iowa severities range from 5 to 40%. Severities in northern Kansas vary from light to heavy but generally are moderate to heavy on lower and mid-leaves. Leaf rust is present in the Pacific Northwest in trace amounts, which is less than this time last year (Line).

Wheat stripe rust.--Stripe rust was found on a McNair 701 trap plot near Trenton, Nebraska and at Manhattan, Kansas on a CIMMYT line (Eversmeyer, 6/11). Stripe rust in the Pacific Northwest is as severe as in 1974. Severities of 90% were observed on the variety Yamhill at heading in the Mount Vernon, Washington area. In the Willamette Valley of Oregon, no rust was observed on Yamhill. Light amounts of stripe rust are present in California. (Line)

Oat stem rust.--Collections were received from Stillwater and Woodward, Oklahoma (Gough, 5/30 & 6/3). Severities in the Stillwater nursery were as great as 50%; only a trace was observed at Woodward. A rusted Volunteer plant was found in Hardeman County, Texas (Goodfellow & Fitchett, 6/1) and in nurseries in Dallas and McLennan Counties, Texas (McDaniel, 6/7 & 6/8). Stem rust is present on oats at Hartsville, South Carolina (Harrison, 6/6).

Preliminary results of the 1975 oat stem rust race survey.

Location	No. of collections	No. of isolates of each race						
		1	2	31	61	76	77	80
Florida	3			6				3
Louisiana	2	3		1				
South Texas	90	6	2	96	133			
North Texas	23			6	32		5	
West Virginia*	1					2		11
Mexico	2			6				

* Barberry aecial collections.

Oat crown rust.--Traces of crown rust were observed in Missouri and Ohio (Kruse, 6/13) with the crop in the flowering stage. No crown rust has been found in southern Minnesota, western Iowa, and eastern Nebraska. However, a spread has been noted from buckthorn at Echo in Yellow Medicine County, Minnesota.

Barley stem rust.--Stem rust was reported on barley in Lancaster (5%, Maxwell & McGinnitt, 6/11) and York (40%, Snelbaker, 6/12) Counties, Pennsylvania. Several pustules were found on Hordeum jubatum in Buena Vista County, Iowa.

Barley leaf rust.--In western Virginia leaf rust severities of 15% were common on barley at the dough stage (Saunders). No barley leaf rust was observed in plots in southern Minnesota.

Rye stem and leaf rusts.--No further spread of rye stem rust has been reported. Traces of leaf rust were reported on rye in Iowa, Minnesota, and Wisconsin last week. Severities of 5% were common in the Virginia's with the crop in the dough stage (Saunders).

Barberry rust.--Aecia were collected in Minnesota in Fillmore County (Schlick, 6/2), and Bradford County, Pennsylvania (Gates, 6/12). An early aecial collection from West Virginia consisted of races 76 and 80, both of which are virulent on pg-9 in oats.

CEREAL RUST BULLETIN

Report No.: 5
Date: July 1, 1975

*Lau
Suhl*

From:
CEREAL RUST LABORATORY
AGRICULTURAL RESEARCH SERVICE (ARS)
U. S. DEPARTMENT OF AGRICULTURE
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Issued By:
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U. S. DEPARTMENT OF AGRICULTURE
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Crop maturity remains at least a week late throughout the Great Plains. Wheat is ripe but little has been cut by late last week in Kansas, Missouri, Illinois, and Indiana. Additional rains, wind, and hail during the past 2 weeks have caused losses where wheat was near maturity. Harvesting will be widespread in Kansas by mid-week.

Wheat stem rust.--Stem rust is now present in the southern counties in Nebraska, and trace amounts have been reported on wheat in northeastern Colorado; west-central Indiana; Van Buren Co., Iowa; and Antrim Co., Michigan (Smith). A field with a 20% severity was observed in Harlan Co., Nebraska this week. Stem rust is heavy in some fields along the Virginia-West Virginia border (Bostic, Saunders, Taylor). The races identified from collections made in the Wichita Falls, Texas and western Oklahoma areas are now being identified. The usual races of the northern Great Plains are the most common TNM and TLM. Traces of the more virulent races, QSH, RKQ, and RTQ, are also present.

Preliminary Results of the 1975 Wheat Stem Rust Race Survey (6/30/75).

Location*	No. of collections	Number of isolates of each race											
		15		151		56	11-32-113						
		TNM	TLM	TDM	QCB	QFB	QSH	MBC	RCR	RHR	RKQ	RTQ	
Georgia	5	1			3					5		1	2
Kansas	4	7	1										
Minnesota	1	1											
North Carolina	4				12								
Oklahoma	17	31	5				4					1	3
South Carolina	4	1		1	4	1							
South Texas	13	4		21	12			1			1		
North Texas	13	6	4		12	2							

* For Arkansas, Florida, Louisiana, and Chino, Mexico see earlier reports.

Wheat leaf rust.--Leaf rust is general throughout the wheat-growing areas. Highest severities exist in eastern Nebraska, but susceptible varieties of winter wheat are moderately rusted as far north as St. Paul, Minnesota and Fargo, North Dakota (Miller & Statler). Leaf rust was first found at Casselton, North Dakota on June 10, and secondary infections were sporulating by June 25 (Miller & Statler). Leaf rust remains light in commercial hard red spring wheat fields due to the resistance of most of the varieties; losses will be moderate on susceptible varieties. Leaf rust severities are moderate to heavy in the Virginia's and traces were reported in Michigan. In the Pacific Northwest leaf rust is generally light but is increasing rapidly in a few local areas.

A culture of leaf rust collected at Beeville, Texas from Blueboy II was found to be virulent on seedlings of Blueboy II. It is UN-race 5, virulent on LR 1, 3, 10, and 24 (Browder).

Wheat stripe rust.--Stripe rust is common and increasing in eastern Washington (Delegans). Stripe rust also is present on Giant Wild Rye in this area.

Oat stem rust.--Stem rust of oats is now present throughout Kansas. A single collection was received from Gage County, Nebraska (Baker, 6/25). It is present in commercial fields as far west as Norton, where stem rust does not normally occur; however, this year there was more stem rust on oats at Norton than at Belleville. Field severities range from a trace to 5% this week. Whether this is related to the heavy rust west of San Antonio in Texas is unknown. Single collections were received from Fayetteville, Arkansas (Jones, 6/19) and Chester, South Carolina (Harrison, 6/24). Races identified from the race survey are as follows:

Preliminary Results of the 1975 Oat Stem Rust Race Survey (6/30/75).

Location*	No. of collections	Number of isolates of each race							
		1	2	31	61	76	77	80	
South Texas	94	6	2	96	139				
North Texas	40			21	60			5	
West Virginia**	2						2	3	1
Virginia**	3	1						6	

* See earlier reports for Florida, Louisiana, and Mexico.

** Barberry aecial collections.

Oat crown rust.--Crown rust remains light throughout the central U.S.A. Traces of crown rust were observed in west-central Indiana, northern Kansas, and southeastern Iowa, and were reported in southwestern Michigan (Smith) and West Virginia (Justin). Recent wet weather should provide for a rapid increase in crown rust.

Barley stem rust.--A 15% severity was reported on barley in Franklin Co., Pennsylvania at hard dough (Snelbaker, 6/20). No rust was observed in Minnesota, Iowa, Nebraska, or South Dakota last week. An early collection from Virginia consisted of races 15-TNM and 151-QF3.

Barley leaf rust.--No leaf rust was observed on commercial fields of barley in Kansas, Iowa, Minnesota, Nebraska, or South Dakota last week. A highly susceptible plot at Rosemount, Minnesota was lightly rusted last week (Skovmand). Some increase should occur in the next week but due to the low level of inoculum, leaf rust should be light on most commercial barleys in the north-central states. Barley leaf rust is light to moderate in the Pennsylvania area.

Rye stem rust.--Traces of stem rust on rye were reported in Montcalm County, Michigan. No stem rust was observed on rye in commercial fields in South Dakota or Minnesota last week.

Rye leaf rust.--Only traces of leaf rust were noted in commercial rye fields in Minnesota and South Dakota last week. Traces were reported in Michigan and light amounts in Pennsylvania. At the current growth stage of rye, resulting losses will be very light.

Barberry rust.--An aecial collection was received from Oconto County, Wisconsin (Line).

Other diseases.--

Wheat: Powdery mildew was severe (flag leaf 50%) on a plot of Bison winter wheat at St. Paul. Light amounts of powdery mildew were reported on winter wheat in Wisconsin. Septoria tritici is light throughout the Nebraska-South Dakota area, but is moderate to severe in some Indiana fields. Septoria nodorum is severe in nurseries in several Indiana locations.

Oats: Halo blight (caused by Pseudomonas coronafaciens) is reported as increasing in south-central Wisconsin. Continued increase and losses would require continued warm, moist weather.

CEREAL RUST BULLETIN

Report No.: 6
Date: July 15, 1975

From:
CEREAL RUST LABORATORY
AGRICULTURAL RESEARCH SERVICE (ARS)
U. S. DEPARTMENT OF AGRICULTURE
UNIVERSITY OF MINNESOTA, ST. PAUL 55101

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Minnesota Agricultural Experiment Station)

Harvest was in full swing from Kansas through Indiana by July 4. Wheat was mature from southern Nebraska through southern Michigan to Virginia. Warm dry weather in early July was followed by cool dry weather last week. Crop maturity in the central states is generally 1 to 2 weeks behind normal; however, winter wheat in southern Minnesota is turning color on schedule. Cereals are generally in good condition with the exception of the flooded area in the southern end of the Red River Valley of the North.

Wheat stem rust.--Stem rust severities have increased rapidly in trap plots of McNair 701 at Rosemount, Minnesota (80% at hard dough), Stockton, Kansas (30% at hard dough), and Clay Center, Nebraska (40% at soft dough, Doupnik, 6/30). Other plots with rust severities were as follows: Purplestraw, 40% in Boone County, Missouri (Sechler); Purplestraw, 25% in Brookings, South Dakota (Buchenau, 7/8); TAM 101, 10% in Hand County, South Dakota (Jons & Fitchett, 7/10); and a nursery entry with 50% severity in Champaign County, Illinois (Jedlinski & Brown, 7/3). Trace amounts of infection were reported on commercial spring wheat plots in Minnesota (Skovmand) and South Dakota (Jons & Fitchett). This is a normal occurrence when there are at least moderate inoculum levels, warm temperatures, and frequent dew periods. Generally, commercial winter wheats in the north-central states are nearly rust-free; however, isolated fields in the following counties have been observed with these percentages of severity/prevalence: 30/40 at Goodhue, Minnesota (Schulz & Ludwitzke, 7/7); 5/100 at Pepin, Wisconsin (Keeler & Druka); 80/20 at Merrick, Nebraska (Baker, 7/2); 5/30 at Allegan, Michigan (Loree, 7/9); and 25/20 at Haakon, South Dakota (Wells, 7/10). Traces of stem rust were reported in Adams County, Colorado (Sexton, 7/3); Clay County, Minnesota (Althaus, 7/7); and Cass County, North Dakota (Miller, 6/22-6/29).

Little further stem rust increase will occur on the winter wheats in Minnesota and South Dakota due to the advanced plant growth stage. Some increase will probably occur in North Dakota on winter wheat, and in all three states on spring wheats. The resistance of the principal commercial varieties (Waldron, Era, and WS 1809) should be adequate; and only traces of stem rust are expected on the durums. Race 15-TNM continues to dominate the 1975 USA rust population; race 151-QCB and -QSH apparently are increasing in prevalence in the eastern USA and in Kansas-Oklahoma, respectively. Races 15-TLM and 151-QFB seem to be declining in frequency.

Rust from Virginia was most likely from an asexual source based on the lack of characteristic early telia production (Roane). This is verified by the presence of only two races (151-QCB and -QFB) in the area. (See Table 1.)

Wheat leaf rust.--Leaf rust is less common on spring wheats than in 1974; however, a rapid disease increase is expected. The varieties most commonly grown should be resistant. Leaf rust is generally light on winter wheat in Minnesota where Minter is the most common variety. Severities of 25% occurred in plots of Bronze, Minter, Centurk, and Winalta winter wheat plots in the Fargo, North Dakota area last week (Miller & Statler). No leaf rust was reported on commercial durum varieties in the north-central states. Although light amounts of leaf rust may develop on durums by maturity, no losses are expected.

Oat stem rust.--Oat stem rust increased rapidly during the past 2 weeks and is now present throughout eastern Nebraska, Iowa, southern Minnesota, Illinois, and West Virginia. In the southern part of this area little further development will occur except in late fields. Stem rust will probably become widespread over the major production area of the Dakota's and Minnesota during the next 2 weeks.

The heaviest severity/prevalence reports were in the following counties: 5/60 in Platte, Nebraska (Baker, 7/2); 10/2 in Atchison, Kansas (Hamon, 7/3); 5/90 in Polk, Iowa (Wallerich, 7/3); 20/5 in Saunders, Nebraska (Baker, 7/1); and 40/100 in Champaign, Illinois (Jedlinski & Baker, 7/3). Races 31 and 61 remain the most important races identified in 1975; however, no collections from Kansas and Nebraska have been identified. Furthermore, of the five major production states (Iowa, Minnesota, North & South Dakota, and Wisconsin), collections have only been received (not yet identified) from Iowa and Minnesota. Normally in recent years race 31 has predominated in this area. See Table 2 for the oat stem rust race survey results to date.

Oat crown rust.--Crown rust is now widespread but very erratic in occurrence in the northern states. A field in Goodhue County, Minnesota was observed with a 10% severity (Schulz & Ludwitzke) and a field in Platte County, Nebraska with 90% severity (Baker). A rapid increase is expected. Crown rust should not be an important factor in production except in the northernmost states and late-planted fields. Races 264B and 276 were identified from April collections from southern Alabama, Louisiana, and Texas (Simons).

Barley stem rust.--Stem rust of barley is reported on the more susceptible varieties (Steptoe, Hypana, and Hiproly) in plots throughout southern Minnesota; Hypana with 40% severity at Rosemount, and Hiproly with 1% in Redwood (Skovmand, 7/8). Some rust is expected in commercial fields but severities should be very light in this area. Late-planted fields of Steptoe in North Dakota could suffer some losses. Stem rust severity/prevalence was reported from commercial fields in these counties: 5/80 in Russell, Kansas (Porterfield, 6/27); and 5/60 in Monroe, West Virginia (Bostic, 7/3).

Barley leaf rust.--Leaf rust is increasing but is erratic in occurrence. Throughout the north-central states losses should be limited to small local areas and to late-planted fields. Larker in plots has a trace severity of leaf rust at St. Paul and 60% at Rosemount.

Rye stem rust.--Stem rust has increased rapidly in some commercial fields. Severity/prevalence reports have been received from the following counties: 10/10 in Goodhue and Dakota, Minnesota (Schulz & Ludwitzke, 7/7); trace/trace in Buffalo, Wisconsin (Keeler & Pruksa, 7/7); and trace/trace in Delaware, Iowa (Michels, 7/2).

Rye leaf rust.--Leaf rust is moderate to severe on the later rye across southern Minnesota. At this late growth stage losses will be minor.

Barberry stem rust.--Collections of severely rusted wheat and oats were received from the Uniform Rust Nurseries at Centre County, Pennsylvania barberry nursery. The high severities and the identification of wheat and oat stem rust from aecial collections indicate these diseases are the result of a rust spread from barberry. Aecial collections produced races 87, 94, and 31 of oat stem rust, and LMB and LCB of wheat stem rust. The aecial collections from Minnesota and Wisconsin have generally been rye stem rust types.

Timothy stem rust.--The only collection of this unique form of stem rust this year was made in Mower County, Minnesota (Laudon, Schulz, & Ludwitzke, 7/9). The source of this rust is unknown.

Table 1. Preliminary results of the 1975 wheat stem rust race survey (7/14/75).

Location*	No. of collections	Number of isolates of each race									
		15			151			11-32-113			Misc.
		TNI	TLM	TDM	QCB	QFB	QSH	RCR	RKQ	RTQ	
Iowa	1	2									
Kansas	74	196	2	3	2	3	12	1	2	1	
Minnesota	5	7									
Missouri	1		1		2						
North Carolina	4				12						
Oklahoma	61	130	7	6	3	1	19		1	1	
Pennsylvania	1	1									
South Carolina	7	1		1	6			7			
South Texas	13	4		21	12						2
North Texas	15	12	4		12	2					
Virginia	3				8	1					
West Virginia	1				1	1					

* For Arkansas, Florida, Georgia, Louisiana, and Mexico see earlier reports.

Table 2. Preliminary results of the 1975 oat stem rust race survey (7/14/75).

Location*	No. of collections	No. of isolates of each race				
		1	2	31	61	77
Oklahoma	6			9	9	
South Carolina	3		3	1	1	3
South Texas	94	6	2	96	139	
North Texas	53			36	83	

* See earlier reports for Florida, Louisiana, and Mexico.

CEREAL RUST BULLETIN

Report No.: 7
Date: July 29, 1975

*Law
Schl*

From:
CEREAL RUST LABORATORY
AGRICULTURAL RESEARCH SERVICE (ARS)
U. S. DEPARTMENT OF AGRICULTURE
UNIVERSITY OF MINNESOTA, ST. PAUL 55101

Issued By:
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U. S. DEPARTMENT OF AGRICULTURE
(In cooperation with ARS and the
Minnesota Agricultural Experiment Station)

Dry weather has dominated the Dakota's, Minnesota, and Montana during the past 2 weeks. The weather has caused some deterioration of the spring-sown small grain crop in parts of these states, while also keeping disease severities lower than expected. Winter wheats vary from hard dough to ripe in the area from southern Minnesota to east-central Montana. Some cutting of spring-sown cereals has occurred in southern Minnesota and northeastern South Dakota and should be widespread by the end of the week.

Wheat stem rust.--Stem rust is the most widespread it has been in years. Trace amounts of stem rust were found last week in every field checked in southern Minnesota and northeastern South Dakota. Severities are very light and no losses will result. Trace amounts of stem rust were found in test plots and in scattered fields of spring wheat in southwestern North Dakota and on commercial winter wheats in eastern Montana (Richland Co., N. D.; Wibaux, Dawson, and McCone Counties, Mont.). No stem rust has been observed in north-central Montana (Burns, 7/21). In plots at Rosemount, Minnesota where susceptible checks had disease severities of 80-90%, Waldron, Ellar, winter-sown Agent (Sr24), Eagle (Australian, Sr26), Agatha (Sr25), and a Triticum boeoticum derivative (Sr22) all had 40-60% severity of moderately susceptible type pustules. This is thought to be due to recent high temperatures. Spring-sown Agent (Sr24) was free of rust at Rosemount last week. Based on identifications made in the race survey and on lines with known genes for stem rust resistance in field plots at both Rosemount and Morris, Minnesota, it is anticipated that the race involved is 15-TNM. The high temperatures have caused Sr6 to be only moderately effective at Rosemount, Minnesota.

Preliminary results of the 1975 wheat stem rust race survey (7/22/75).

Location*	No. of collections	Number of isolates of each race								
		15			151		11-32-113		17-29	
		TNM	TLM	TDM	QCB	QFB	QSH	RKQ	RTQ	HJB
Iowa	3	8								
Kansas	100	265	2	5	6					1
Minnesota	5	7								
Nebraska	13	30		1			1	3		
Virginia	5				11	1			3	
West Virginia	9			1	23	1				

* For southern states and Mexico, see earlier reports.

Wheat leaf rust.--Leaf rust is generally light and scattered but present in trace amounts in most fields. Severities apparently reached 20-60% in most winter wheat fields in northwestern North Dakota and eastern Montana. The recent lack of dew has retarded disease development in the spring wheats and except for a few late-planted fields no further disease increase is expected.

Oat stem rust.--Stem rust was present in each commercial field examined across southern Minnesota and northeastern South Dakota last week. In southwestern North Dakota stem rust occurred in a few commercial oat fields and on wild oats into east-central Montana. Severities are generally light; however, in southeastern Minnesota where heavy rains occurred in early July, severities are as high as 30%.

Severities in nurseries at Mead, Nebraska reached 60% by July 10 (Schmidt). Races 31 and 61 continue to be the most important races in the Great Plains.

Preliminary results of the 1975 oat stem rust race survey (7/22/75).

Location*	No. of collections	No. of isolates of each race	
		31	61
Arkansas	5	4	9
Kansas	2	2	2

* See earlier reports for southern states and Mexico.

Oat crown rust.--Traces of crown rust were observed in commercial fields in southern Minnesota and eastern South Dakota last week. The heaviest severities were observed in a few southeastern Minnesota fields. Crown rust could still increase in a few late-planted fields but generally severities should be light to moderate. In eastern Montana crown rust was observed on a few plants of wild oats and on several lines in nurseries. No crown rust was observed in commercial fields in western North Dakota or eastern Montana.

Barley stem rust.--Traces of stem rust are present on commercial barleys from southern Minnesota throughout east-central Montana and north-central North Dakota. No losses have occurred in any fields we observed in this area. Severities will remain light.

Barley leaf rust.--Leaf rust was observed in moderate amounts in a few southern Minnesota fields; elsewhere in the north-central states, only a few pustules were observed.

Rye stem and leaf rusts.--Stem rust was observed in only a single commercial field of rye in northeastern South Dakota and losses in that field will be very light. Rye was too mature to be evaluated for leaf rust severity in southern Minnesota, northeastern South Dakota, and north-central North Dakota.

Barberry rust.--The spread from barberry to wheat has occurred in Whitman County, Washington. Severities and prevalence in this area remain light (Delegans, 7/16). We have made 17 isolates of stem rust from 8 aecial collections from West Virginia and Wisconsin. We identified 10 different races of wheat stem rust and 1 of oat stem rust from these collections.

CEREAL RUST BULLETIN

Report No.: 4
Date: June 17, 1975

From:
CEREAL RUST LABORATORY
AGRICULTURAL RESEARCH SERVICE (ARS)
U. S. DEPARTMENT OF AGRICULTURE
UNIVERSITY OF MINNESOTA, ST. PAUL 55101

Issued By:
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U. S. DEPARTMENT OF AGRICULTURE
(In cooperation with ARS and the
Minnesota Agricultural Experiment Station)

Frequent wet weather delayed harvest during the past 2 weeks. Crop maturity varies from a week late in northern Kansas to 2 weeks late in southern Kansas. Grain is ripe in northern Texas and southern Oklahoma and is being harvested as weather permits. Some lodging has occurred due to wind and rain from southern Kansas southward. Spring sown cereals vary from jointing to heading in eastern Nebraska, western Iowa, and southern Minnesota. Moisture is currently adequate in most of the Great Plains.

Wheat stem rust.--Stem rust has been found across central and eastern Kansas. Trap plots of McNair 701 in Kansas had the following severities: Pratt, 10% (Deihl, 6/5); Wellington, 30% (6/5); Mankato, 5% (6/12); Labette Co., 60% (Eversmeyer & Kramer, 6/5); Manhattan, 20% (Eversmeyer, 6/12). Commercial fields in Kansas with severities as high as trace-10% in Johnson Co., trace-3% in Doniphan and Atchison Counties (Hamon); trace-5% in Chautauqua and Reno Counties, trace-10% in Greenwood Co. (Porterfield); and 2% in Douglas Co. (Eversmeyer) were reported. Stem rust should not result in any losses in most Kansas fields. In Lafayette, Indiana 10% severity was observed on McNair 701 (Shaner, 6/12). Stem rust was present in centers in plots at Amelia, Warsaw, and Manassas, Virginia (Roane) and Monroe County, West Virginia (Bostic, 6/10). Stem rust was found in a trap plot of McNair 701 at Rosemount, Minnesota on June 11. Three pustules were found in approximately 10 feet of row. Pustule age and weather conditions indicate that this infection most likely occurred on May 23. Spreads from these infections are now sporulating.

Traces of stem rust have been reported on Agent, Sage, and Centurk; in all cases these varieties were in plots near or adjacent to plots of McNair 701. Race survey results do not indicate any hazard for these varieties among cultures identified at this time.

Preliminary results of the 1975 wheat stem rust race survey (6/16/75).

Location	No. of collec- tions	Number of isolates of each race														
		15				151		43	17-29		56	11-32-113				
		TNM	TLM	TDM	TDR	QCB	QFB	GJI	HDC	HRC	MBC	RSH	RCR	RPQ	RKQ	RTQ
Arkansas	1	3														
Florida	6		1						1	6	5		4			
Georgia	4					1							3		1	2
Louisiana	7	3	5			1	3							5		
Mississippi	4	3				9										
South Texas	13	4		21		12							*			
Ciano, Mex.	15				1			1				1			11	30

* 1 isolate RHR.

Wheat leaf rust.--Leaf rust is present in trace amounts in Missouri, Ohio, South Dakota, Minnesota, and Wisconsin. Leaf rust has increased rapidly in Nebraska with severities in commercial fields in Perkins County of southwestern Nebraska, 5% (Baker, 6/3) at flowering, and in eastern Nebraska and western Iowa severities range from 5 to 40%. Severities in northern Kansas vary from light to heavy but generally are moderate to heavy on lower and mid-leaves. Leaf rust is present in the Pacific Northwest in trace amounts, which is less than this time last year (Line).

Wheat stripe rust.--Stripe rust was found on a McNair 701 trap plot near Trenton, Nebraska and at Manhattan, Kansas on a CIMMYT line (Eversmeyer, 6/11). Stripe rust in the Pacific Northwest is as severe as in 1974. Severities of 90% were observed on the variety Yamhill at heading in the Mount Vernon, Washington area. In the Willamette Valley of Oregon, no rust was observed on Yamhill. Light amounts of stripe rust are present in California. (Line)

Oat stem rust.--Collections were received from Stillwater and Woodward, Oklahoma (Gough, 5/30 & 6/3). Severities in the Stillwater nursery were as great as 50%; only a trace was observed at Woodward. A rusted Volunteer plant was found in Hardeman County, Texas (Goodfellow & Fitchett, 6/1) and in nurseries in Dallas and McLennan Counties, Texas (McDaniel, 6/7 & 6/8). Stem rust is present on oats at Hartsville, South Carolina (Harrison, 6/6).

Preliminary results of the 1975 oat stem rust race survey.

Location	No. of collections	No. of isolates of each race						
		1	2	31	61	76	77	80
Florida	3			6				3
Louisiana	2	3		1				
South Texas	90	6	2	96	133			
North Texas	23			6	32			5
West Virginia*	1					2		11
Mexico	2			6				

* Barberry aecial collections.

Oat crown rust.--Traces of crown rust were observed in Missouri and Ohio (Kruse, 6/13) with the crop in the flowering stage. No crown rust has been found in southern Minnesota, western Iowa, and eastern Nebraska. However, a spread has been noted from buckthorn at Echo in Yellow Medicine County, Minnesota.

Barley stem rust.--Stem rust was reported on barley in Lancaster (5%, Maxwell & McGinnitt, 6/11) and York (40%, Snelbaker, 6/12) Counties, Pennsylvania. Several pustules were found on Hordeum jubatum in Buena Vista County, Iowa.

Barley leaf rust.--In western Virginia leaf rust severities of 15% were common on barley at the dough stage (Saunders). No barley leaf rust was observed in plots in southern Minnesota.

Rye stem and leaf rusts.--No further spread of rye stem rust has been reported. Traces of leaf rust were reported on rye in Iowa, Minnesota, and Wisconsin last week. Severities of 5% were common in the Virginia's with the crop in the dough stage (Saunders).

Barberry rust.--Aecia were collected in Minnesota in Fillmore County (Schlick, 6/2), and Bradford County, Pennsylvania (Gates, 6/12). An early aecial collection from West Virginia consisted of races 76 and 80, both of which are virulent on pg-9 in oats.

CEREAL RUST BULLETIN

Report No.: 5
Date: July 1, 1975

From:
CEREAL RUST LABORATORY
AGRICULTURAL RESEARCH SERVICE (ARS)
U. S. DEPARTMENT OF AGRICULTURE
UNIVERSITY OF MINNESOTA, ST. PAUL 55101

Issued By:
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U. S. DEPARTMENT OF AGRICULTURE
(In cooperation with ARS and the
Minnesota Agricultural Experiment Station)

Crop maturity remains at least a week late throughout the Great Plains. Wheat is ripe but little has been cut by late last week in Kansas, Missouri, Illinois, and Indiana. Additional rains, wind, and hail during the past 2 weeks have caused losses where wheat was near maturity. Harvesting will be widespread in Kansas by mid-week.

Wheat stem rust.--Stem rust is now present in the southern counties in Nebraska, and trace amounts have been reported on wheat in northeastern Colorado; west-central Indiana; Van Buren Co., Iowa; and Antrim Co., Michigan (Smith). A field with a 20% severity was observed in Harlan Co., Nebraska this week. Stem rust is heavy in some fields along the Virginia-West Virginia border (Bostic, Saunders, Taylor). The races identified from collections made in the Wichita Falls, Texas and western Oklahoma areas are now being identified. The usual races of the northern Great Plains are the most common TNM and TLM. Traces of the more virulent races, QSH, RKQ, and RTQ, are also present.

Preliminary Results of the 1975 Wheat Stem Rust Race Survey (6/30/75).

Location*	No. of collec- tions	Number of isolates of each race										
		15			151			56	11-32-113			
		TNM	TLM	TDM	QCB	QFB	QSH	MBC	RCR	RHR	RKQ	RTQ
Georgia	5	1			3					5	1	2
Kansas	4	7	1									
Minnesota	1	1										
North Carolina	4				12							
Oklahoma	17	31	5				4				1	3
South Carolina	4	1		1	4	1						
South Texas	13	4		21	12			1		1		
North Texas	13	6	4		12	2						

* For Arkansas, Florida, Louisiana, and Ciano, Mexico see earlier reports.

Wheat leaf rust.--Leaf rust is general throughout the wheat-growing areas. Highest severities exist in eastern Nebraska, but susceptible varieties of winter wheat are moderately rusted as far north as St. Paul, Minnesota and Fargo, North Dakota (Miller & Statler). Leaf rust was first found at Casselton, North Dakota on June 10, and secondary infections were sporulating by June 25 (Miller & Statler). Leaf rust remains light in commercial hard red spring wheat fields due to the resistance of most of the varieties; losses will be moderate on susceptible varieties. Leaf rust severities are moderate to heavy in the Virginia's and traces were reported in Michigan. In the Pacific Northwest leaf rust is generally light but is increasing rapidly in a few local areas.

A culture of leaf rust collected at Beville, Texas from Blueboy II was found to be virulent on seedlings of Blueboy II. It is UN-race 5, virulent on LR 1, 3, 10, and 24 (Browder).

Wheat stripe rust.--Stripe rust is common and increasing in eastern Washington (Delegans). Stripe rust also is present on Giant Wild Rye in this area.

Oat stem rust.--Stem rust of oats is now present throughout Kansas. A single collection was received from Gage County, Nebraska (Baker, 6/25). It is present in commercial fields as far west as Norton, where stem rust does not normally occur; however, this year there was more stem rust on oats at Norton than at Belleville. Field severities range from a trace to 5% this week. Whether this is related to the heavy rust west of San Antonio in Texas is unknown. Single collections were received from Fayetteville, Arkansas (Jones, 6/19) and Chester, South Carolina (Harrison, 6/24). Races identified from the race survey are as follows:

Preliminary Results of the 1975 Oat Stem Rust Race Survey (6/30/75).

Location*	No. of collections	Number of isolates of each race						
		1	2	31	61	76	77	80
South Texas	94	6	2	96	139			
North Texas	40			21	60		5	
West Virginia**	2					2	3	1
Virginia**	3	1					6	

* See earlier reports for Florida, Louisiana, and Mexico.

** Barberry aecial collections.

Oat crown rust.--Crown rust remains light throughout the central U.S.A. Traces of crown rust were observed in west-central Indiana, northern Kansas, and southeastern Iowa, and were reported in southwestern Michigan (Smith) and West Virginia (Justin). Recent wet weather should provide for a rapid increase in crown rust.

Barley stem rust.--A 15% severity was reported on barley in Franklin Co., Pennsylvania at hard dough (Snelbaker, 6/20). No rust was observed in Minnesota, Iowa, Nebraska, or South Dakota last week. An early collection from Virginia consisted of races 15-TNM and 151-QFB.

Barley leaf rust.--No leaf rust was observed on commercial fields of barley in Kansas, Iowa, Minnesota, Nebraska, or South Dakota last week. A highly susceptible plot at Rosemount, Minnesota was lightly rusted last week (Skovmand). Some increase should occur in the next week but due to the low level of inoculum, leaf rust should be light on most commercial barleys in the north-central states. Barley leaf rust is light to moderate in the Pennsylvania area.

Rye stem rust.--Traces of stem rust on rye were reported in Montcalm County, Michigan. No stem rust was observed on rye in commercial fields in South Dakota or Minnesota last week.

Rye leaf rust.--Only traces of leaf rust were noted in commercial rye fields in Minnesota and South Dakota last week. Traces were reported in Michigan and light amounts in Pennsylvania. At the current growth stage of rye, resulting losses will be very light.

Barberry rust.--An aecial collection was received from Oconto County, Wisconsin (Line).

Other diseases.--

Wheat: Powdery mildew was severe (flag leaf 50%) on a plot of Bison winter wheat at St. Paul. Light amounts of powdery mildew were reported on winter wheat in Wisconsin. Septoria tritici is light throughout the Nebraska-South Dakota area, but is moderate to severe in some Indiana fields. Septoria nodorum is severe in nurseries in several Indiana locations.

Oats: Halo blight (caused by Pseudomonas coronafaciens) is reported as increasing in south-central Wisconsin. Continued increase and losses would require continued warm, moist weather.

CEREAL RUST BULLETIN

Report No.: 6
Date: July 15, 1975

From:
CEREAL RUST LABORATORY
AGRICULTURAL RESEARCH SERVICE (ARS)
U. S. DEPARTMENT OF AGRICULTURE
UNIVERSITY OF MINNESOTA, ST. PAUL 55101

Issued By:
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U. S. DEPARTMENT OF AGRICULTURE
(In cooperation with ARS and the
Minnesota Agricultural Experiment Station)

Harvest was in full swing from Kansas through Indiana by July 4. Wheat was mature from southern Nebraska through southern Michigan to Virginia. Warm dry weather in early July was followed by cool dry weather last week. Crop maturity in the central states is generally 1 to 2 weeks behind normal; however, winter wheat in southern Minnesota is turning color on schedule. Cereals are generally in good condition with the exception of the flooded area in the southern end of the Red River Valley of the North.

Wheat stem rust.--Stem rust severities have increased rapidly in trap plots of McNair 701 at Rosemount, Minnesota (80% at hard dough), Stockton, Kansas (30% at hard dough), and Clay Center, Nebraska (40% at soft dough, Doupnik, 6/30). Other plots with rust severities were as follows: Purplestraw, 40% in Boone County, Missouri (Sechler); Purplestraw, 25% in Brookings, South Dakota (Buchenau, 7/8); TAM 101, 10% in Hand County, South Dakota (Jons & Fitchett, 7/10); and a nursery entry with 50% severity in Champaign County, Illinois (Jedlinski & Brown, 7/3). Trace amounts of infection were reported on commercial spring wheat plots in Minnesota (Skovmand) and South Dakota (Jons & Fitchett). This is a normal occurrence when there are at least moderate inoculum levels, warm temperatures, and frequent dew periods. Generally, commercial winter wheats in the north-central states are nearly rust-free; however, isolated fields in the following counties have been observed with these percentages of severity/prevalence: 30/40 at Goodhue, Minnesota (Schulz & Ludwitzke, 7/7); 5/100 at Pepin, Wisconsin (Keeler & Druka); 80/20 at Merrick, Nebraska (Baker, 7/2); 5/30 at Allegan, Michigan (Loree, 7/9); and 25/20 at Haakon, South Dakota (Wells, 7/10). Traces of stem rust were reported in Adams County, Colorado (Sexton, 7/3); Clay County, Minnesota (Althaus, 7/7); and Cass County, North Dakota (Miller, 6/22-6/29).

Little further stem rust increase will occur on the winter wheats in Minnesota and South Dakota due to the advanced plant growth stage. Some increase will probably occur in North Dakota on winter wheat, and in all three states on spring wheats. The resistance of the principal commercial varieties (Waldron, Era, and WS 1809) should be adequate; and only traces of stem rust are expected on the durum. Race 15-TNM continues to dominate the 1975 USA rust population; race 151-QCB and -QSH apparently are increasing in prevalence in the eastern USA and in Kansas-Oklahoma, respectively. Races 15-TLM and 151-QFB seem to be declining in frequency.

Rust from Virginia was most likely from an asexual source based on the lack of characteristic early telia production (Roane). This is verified by the presence of only two races (151-QCB and -QFB) in the area. (See Table 1.)

Wheat leaf rust.--Leaf rust is less common on spring wheats than in 1974; however, a rapid disease increase is expected. The varieties most commonly grown should be resistant. Leaf rust is generally light on winter wheat in Minnesota where Minter is the most common variety. Severities of 25% occurred in plots of Bronze, Minter, Centurk, and Winalta winter wheat plots in the Fargo, North Dakota area last week (Miller & Statler). No leaf rust was reported on commercial durum varieties in the north-central states. Although light amounts of leaf rust may develop on durums by maturity, no losses are expected.

Oat stem rust.--Oat stem rust increased rapidly during the past 2 weeks and is now present throughout eastern Nebraska, Iowa, southern Minnesota, Illinois, and West Virginia. In the southern part of this area little further development will occur except in late fields. Stem rust will probably become widespread over the major production area of the Dakotas and Minnesota during the next 2 weeks.

The heaviest severity/prevalence reports were in the following counties: 5/60 in Platte, Nebraska (Baker, 7/2); 10/2 in Atchison, Kansas (Hamon, 7/3); 5/90 in Polk, Iowa (Wallerich, 7/3); 20/5 in Saunders, Nebraska (Baker, 7/1); and 40/100 in Champaign, Illinois (Jedlinski & Baker, 7/3). Races 31 and 61 remain the most important races identified in 1975; however, no collections from Kansas and Nebraska have been identified. Furthermore, of the five major production states (Iowa, Minnesota, North & South Dakota, and Wisconsin), collections have only been received (not yet identified) from Iowa and Minnesota. Normally in recent years race 31 has predominated in this area. See Table 2 for the oat stem rust race survey results to date.

Oat crown rust.--Crown rust is now widespread but very erratic in occurrence in the northern states. A field in Goodhue County, Minnesota was observed with a 10% severity (Schulz & Ludwitzke) and a field in Platte County, Nebraska with 90% severity (Baker). A rapid increase is expected. Crown rust should not be an important factor in production except in the northernmost states and late-planted fields. Races 264B and 276 were identified from April collections from southern Alabama, Louisiana, and Texas (Simons).

Barley stem rust.--Stem rust of barley is reported on the more susceptible varieties (Steptoe, Hypana, and Hiproly) in plots throughout southern Minnesota; Hypana with 40% severity at Rosemount, and Hiproly with 1% in Redwood (Skovmand, 7/8). Some rust is expected in commercial fields but severities should be very light in this area. Late-planted fields of Steptoe in North Dakota could suffer some losses. Stem rust severity/prevalence was reported from commercial fields in these counties: 5/80 in Russell, Kansas (Porterfield, 6/27); and 5/60 in Monroe, West Virginia (Bostic, 7/3).

Barley leaf rust.--Leaf rust is increasing but is erratic in occurrence. Throughout the north-central states losses should be limited to small local areas and to late-planted fields. Larker in plots has a trace severity of leaf rust at St. Paul and 60% at Rosemount.

Rye stem rust.--Stem rust has increased rapidly in some commercial fields. Severity/prevalence reports have been received from the following counties: 10/10 in Goodhue and Dakota, Minnesota (Schulz & Ludwitzke, 7/7); trace/trace in Buffalo, Wisconsin (Keeler & Pruksa, 7/7); and trace/trace in Delaware, Iowa (Michels, 7/2).

Rye leaf rust.--Leaf rust is moderate to severe on the later rye across southern Minnesota. At this late growth stage losses will be minor.

Barberry stem rust.--Collections of severely rusted wheat and oats were received from the Uniform Rust Nurseries at Centre County, Pennsylvania barberry nursery. The high severities and the identification of wheat and oat stem rust from aecial collections indicate these diseases are the result of a rust spread from barberry. Aecial collections produced races 37, 94, and 31 of oat stem rust, and LMB and LCB of wheat stem rust. The aecial collections from Minnesota and Wisconsin have generally been rye stem rust types.

Timothy stem rust.--The only collection of this unique form of stem rust this year was made in Mower County, Minnesota (Laudon, Schulz, & Ludwitzke, 7/9). The source of this rust is unknown.

See page 3 for Tables 1 and 2.

Table 1. Preliminary results of the 1975 wheat stem rust race survey (7/14/75).

Location*	No. of collections	Number of isolates of each race										
		15			151			11-32-113			Misc.	
		TMI	TLM	TDM	QCB	QFB	QSH	RCR	RKQ	RTQ		
Iowa	1	2										
Kansas	74	196	2	3	2	3	12	1	2	1		
Minnesota	5	7										
Missouri	1		1		2							
North Carolina	4				12							
Oklahoma	61	130	7	6	3	1	19		1	1		
Pennsylvania	1	1										
South Carolina	7	1		1	6			7				
South Texas	13	4		21	12							2
North Texas	15	12	4		12	2						
Virginia	3				8	1						
West Virginia	1				1	1						

* For Arkansas, Florida, Georgia, Louisiana, and Mexico see earlier reports.

Table 2. Preliminary results of the 1975 oat stem rust race survey (7/14/75).

Location*	No. of collections	No. of isolates of each race				
		1	2	31	61	77
Oklahoma	6			9	9	
South Carolina	3		3	1	1	3
South Texas	94	6	2	96	139	
North Texas	53			36	83	

* See earlier reports for Florida, Louisiana, and Mexico.

CEREAL RUST BULLETIN

Report No.: 7
Date: July 29, 1975

From:
CEREAL RUST LABORATORY
AGRICULTURAL RESEARCH SERVICE (ARS)
U. S. DEPARTMENT OF AGRICULTURE
UNIVERSITY OF MINNESOTA, ST. PAUL 55101

Issued By:
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U. S. DEPARTMENT OF AGRICULTURE
(In cooperation with ARS and the
Minnesota Agricultural Experiment Station)

Dry weather has dominated the Dakota's, Minnesota, and Montana during the past 2 weeks. The weather has caused some deterioration of the spring-sown small grain crop in parts of these states, while also keeping disease severities lower than expected. Winter wheats vary from hard dough to ripe in the area from southern Minnesota to east-central Montana. Some cutting of spring-sown cereals has occurred in southern Minnesota and northeastern South Dakota and should be widespread by the end of the week.

Wheat stem rust.--Stem rust is the most widespread it has been in years. Trace amounts of stem rust were found last week in every field checked in southern Minnesota and northeastern South Dakota. Severities are very light and no losses will result. Trace amounts of stem rust were found in test plots and in scattered fields of spring wheat in southwestern North Dakota and on commercial winter wheats in eastern Montana (Richland Co., N. D.; Wibaux, Dawson, and McCone Counties, Mont.). No stem rust has been observed in north-central Montana (Burns, 7/21). In plots at Rosemount, Minnesota where susceptible checks had disease severities of 80-90%, Waldron, Ellar, winter-sown Agent (Sr24), Eagle (Australian, Sr26), Agatha (Sr25), and a Triticum boeoticum derivative (Sr22) all had 40-60% severity of moderately susceptible type pustules. This is thought to be due to recent high temperatures. Spring-sown Agent (Sr24) was free of rust at Rosemount last week. Based on identifications made in the race survey and on lines with known genes for stem rust resistance in field plots at both Rosemount and Morris, Minnesota, it is anticipated that the race involved is 15-TNM. The high temperatures have caused Sr6 to be only moderately effective at Rosemount, Minnesota.

Preliminary results of the 1975 wheat stem rust race survey (7/22/75).

Location*	No. of collections	Number of isolates of each race								
		15			151			11-32-113		17-29
		TNM	TLM	TDM	QCB	QFB	QSH	RKQ	RTQ	HJB
Iowa	3	8								
Kansas	100	265	2	5	6					1
Minnesota	5	7								
Nebraska	13	30		1			1	3		
Virginia	5				11	1				3
West Virginia	9			1	23	1				

* For southern states and Mexico, see earlier reports.

Wheat leaf rust.--Leaf rust is generally light and scattered but present in trace amounts in most fields. Severities apparently reached 20-60% in most winter wheat fields in northwestern North Dakota and eastern Montana. The recent lack of dew has retarded disease development in the spring wheats and except for a few late-planted fields no further disease increase is expected.

Oat stem rust.--Stem rust was present in each commercial field examined across southern Minnesota and northeastern South Dakota last week. In southwestern North Dakota stem rust occurred in a few commercial oat fields and on wild oats into east-central Montana. Severities are generally light; however, in southeastern Minnesota where heavy rains occurred in early July, severities are as high as 30%.

Severities in nurseries at Mead, Nebraska reached 60% by July 10 (Schmidt). Races 31 and 61 continue to be the most important races in the Great Plains.

Preliminary results of the 1975 oat stem rust race survey (7/22/75).

Location*	No. of collections	No. of isolates of each race	
		31	61
Arkansas	5	4	9
Kansas	2	2	2

* See earlier reports for southern states and Mexico.

Oat crown rust.--Traces of crown rust were observed in commercial fields in southern Minnesota and eastern South Dakota last week. The heaviest severities were observed in a few southeastern Minnesota fields. Crown rust could still increase in a few late-planted fields but generally severities should be light to moderate. In eastern Montana crown rust was observed on a few plants of wild oats and on several lines in nurseries. No crown rust was observed in commercial fields in western North Dakota or eastern Montana.

Barley stem rust.--Traces of stem rust are present on commercial barleys from southern Minnesota throughout east-central Montana and north-central North Dakota. No losses have occurred in any fields we observed in this area. Severities will remain light.

Barley leaf rust.--Leaf rust was observed in moderate amounts in a few southern Minnesota fields; elsewhere in the north-central states, only a few pustules were observed.

Rye stem and leaf rusts.--Stem rust was observed in only a single commercial field of rye in northeastern South Dakota and losses in that field will be very light. Rye was too mature to be evaluated for leaf rust severity in southern Minnesota, northeastern South Dakota, and north-central North Dakota.

Barberry rust.--The spread from barberry to wheat has occurred in Whitman County, Washington. Severities and prevalence in this area remain light (Delegans, 7/16). We have made 17 isolates of stem rust from 8 aecial collections from West Virginia and Wisconsin. We identified 10 different races of wheat stem rust and 1 of oat stem rust from these collections.

CEREAL RUST BULLETIN

Report No.: 8
FINAL ISSUE
Date: August 12, 1975

From:
CEREAL RUST LABORATORY
AGRICULTURAL RESEARCH SERVICE (ARS)
U. S. DEPARTMENT OF AGRICULTURE
UNIVERSITY OF MINNESOTA, ST. PAUL 55101

Issued By:
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
U. S. DEPARTMENT OF AGRICULTURE
(In cooperation with ARS and the
Minnesota Agricultural Experiment Station)

Scattered fields of small grain cereals have been harvested as far north as the Canadian border. The rains of early August did little to benefit the small grain crop due to its advanced stage of maturity.

Wheat stem rust.--Stem rust was observed on June 11 at St. Paul, which is 8 days earlier than the 1927-1962 average. Ideal conditions resulted in a rapid increase in June, and if normal precipitation had fallen in July significant amounts of stem rust would have been present instead of the trace amounts found in commercial fields by early August. Even in small plots from which more inoculum is lost than received, the following severities were observed or reported on the cultivar 'Baart' about the early dough stage of crop development: 10%, Cavalier Co., North Dakota and Marshall Co., Minnesota; 30%, Foster Co., ND and Polk Co., MN; 40%, Dickey Co., ND; 60%, Cass Co., ND; 65%, Brookings Co., SD; and 80%, Stevens and Dakota Counties, MN.

The preliminary results of the race survey are shown in Table 1. Several hundred collections were received in the past 2 weeks from Washington, North Dakota, South Dakota, Minnesota, and Michigan that are yet to be identified. Race 15-TNM is the most common race identified, comprising 72% in 1975 compared to 52% in 1974. The race of greater concern than 15-TNM to be watched is race 151-QSH. Centurk is moderately to fully susceptible to this race in the field. Previously, race 151-QSH had been most common in South Texas and made up about 2% of the isolates from Kansas, Nebraska, and Oklahoma where Centurk is widely grown. In 1975 QSH comprised 4, 19, and 11% of the isolates from these states, respectively.

The seedling resistance of Sr 13, 22, 24, 25, 26, and 27 has been effective against all stem rust collections so far in 1975. No new races with adequate virulence to be hazardous to the grain crop have been detected to date in 1975.

Oat stem rust.--Disease increase was generally limited by the advanced stage of crop maturity. However, commercial fields with severities from 20 to 30% were reported or observed in Jefferson and Henry Counties in Iowa; Grant Co., MN; Watonwan Co., MN; and 5-10% severities were reported or observed in Ida County, Iowa; Rock Co., MN; and Dickey Co., ND. Severities in commercial fields were generally a trace, and prevalence ranged from a trace to 100%. Preliminary results of the oat stem rust race survey are shown in Table 2. Caution should be used with this data, as several hundred collections, mostly from Minnesota, North Dakota, South Dakota, Iowa, and Wisconsin, have been received but not identified during the past 2 weeks. This area is the major U.S. oat-producing area, and in recent years race 31 has been the most common race due to the presence of Pg-2 and/or Pg-4 in the commercial varieties. We have also received from this area numerous collections of wild oats from which race 61 has been the most prevalent race identified in recent years. No virulence for pg-13 has been found in the most common races 31 and 61.

Barley stem rust.--Stem rust on barley remains light in commercial fields, trace severity and trace to 100% prevalence. Of the commercial barleys in the north-central states, Larker remains the most resistant, and Steptoe the most susceptible.

1972 - 8
1973 -
1974 - 2
1975 - 8
1976 - 8
1977 - 7
1978 - 7

The major ^{hard red} Spring wheat ^{cultivar} Waldron, Era and Olat ^{is} remained resistant.

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Table 1. Preliminary data of the 1975 wheat stem rust race survey (8/11/75).

State	No. of collections	% of the isolates of the most common races								
		15			151			11-32-113		
		TNM	TDM	TLM	QCB	QFB	QSH	RCR	RKQ	RTQ
Arkansas	1	100								
Florida	6			6				24		
Georgia	5	8			25			42	8	17
Illinois	6	53	12		35					
Indiana	4	75	8		17					
Iowa	7	80	5	5	5					5
Kansas	107	90	2	1	1	1	4	1	1	1
Louisiana	7	18		19	6	18				
Michigan	2	100								
Minnesota	22	84		2		2	12			
Mississippi	4	25			75					
Missouri	1			33	66					
Nebraska	58	75	1		1		19		2	2
North Carolina	5	14			86					
Oklahoma	65	78	4	4	2	1	11		1	1
South Carolina	7	12	12		50					
South Dakota	1		100							
South Texas	13	11	57		32					
North Texas	15	40		13	40	7				
Virginia	4				90	10				
West Virginia	29	4		1	84	1	6			
Total (75)	452	72	4	2	12	1	6	1	1	1
Total (1974)	914	52	2	13	4	10	3		2	1

Table 2. Preliminary data of the 1975 oat stem rust race survey (8/11/75).

State	No. of collections	% of isolates of each race				
		1	2	31	61	77
Arkansas	5			31	69	
Florida	3			66		33
Iowa	2			100		
Kansas	4			71	28	
Louisiana	2	75		25		
Missouri	3			100		
Nebraska	11			60	30	
Oklahoma	6			50	50	
South Carolina	4		30	10	20	40
North Texas	53			29	67	4
South Texas	94	2	1	40	57	
Total (75)	187	2	1	40	54	2
Total (1974)	362	1	1	76	9	