AIR-BORNE RUST INOCULUM OVER WESTERN CANADA IN 1972'

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The number of air–borne urediospores in Western Canada in 1972 was assessed by exposing Vaseline–coated microscope slides for 48–hour periods at six locations in Manitoba and Saskatchewan. The slides were placed in spore trap: that held the vaseline-coated surface at 45 from the vertical. The slides were prepared at Winnipeg, except those exposed at Saskatoon, and were mailed to and from each location protected by a wooden frame and carefully wrapped in paper. Precautions were taken to prevent urediospore contamination of the slides. The number of urediospores caught during each exposure was determined by microscope examination of the slides at Winnipeg. Slides exposed at Saskatoon were prepared and examined by the staff of the Agriculture Canada Research Station, Saskatoon, Saskatchewan.

Air–borne urediospores of stem rust and leaf rust were present in Manitoba and Saskatchewan during May (Table 1) and traces of leaf rust were found in early sown wheat fields in the Red River Valley of Manitoba on June 5, about two weeks earlier than usual. Most wheat varieties are resistant to stem rust and, although air–borne inoculum had been relatively plentiful, it was not observed on susceptible varieties until July 17.

Urediospores, especially leaf rust spores, were more abundant in Saskatchewan as the season progressed. Leaf rust spores greatly outnumbered stem rust spores because the main varieties grown in the rust area are resistant to stem rust and moderately susceptible to leaf rust. A late but severe

Table 1. Number of urediospores of stem rust and leaf rust per square inch observed on vaseline-coated slides exposed for 48-hour periods at three locations in Manitoba and three locations in Saskatchewan in 1972

Date	Winnipeg		Morden		Brandon		Indian Head		Regina		Saskatoon	
	Stem rust	Leaf rust	Stem rust	Leaf rust	Stem rust	Leaf rust	Stem rust	Leaf rust	Stem rust	Leaf rust	Stem rust	Leaf rust
May 19-20	0	1	0	1	0	1	1	2	0	0		
21-22	0	3	0	1	0	1	0	1				
23-24	1	1	0	1	0	0	0	2	0	0	0	0
25-26	0	1	0	4	0	0	0	1	0	1	0	0
27-20	1	1	0	12	0	1	1	0	1	1	0	0
29-30	1	1	0	1	0	1	1	2	0	12	0	0
31- 1	1	2	0	1	1	1	0	1	1	4	0	0
May Total	4	10	0	21	1	5	3	9	2	18	0	0
June 2- 3	0	1			0	1	1	1	1	6	0	0
4- 5	0	0			1	0	1	5	1	11	0	0
6- 7	1	2	0	9	0	4	1	19	0	2	0	0
8- 9	1	4	0	3	1	7	1	7	1	9	0	0
10-11	1	19			1	6	0	12	1	18	0	3
12-13	0	3	2	21	0	4	2	11	1	9	0	7
14-15	1	4	1	6	0	17	1	3	1	9	0	5
16-17	0	9	10	66	3	16	1	10	3	48	0	40
18-19					2	9	1	14	0	9	0	34
20-21	0	1	2	2	0	1	1	5	0	5	0	14
22-23	1	9	0	33	4	25	17	136	47	281	0	19
24-25	0	6			2	13	0	7	2	19	0	10
26-27	7	25	0	75	0	4	2	8	0	9	0	34
28-29	2	15	4	29	2	16	2	10	4	31	0	11
30- 1	1	10	1	7	1	21	0	2	1	3	0	25
June Total	15	108	20	251	17	144	31	250	63	469	0	202

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Table 1 (ctd.)

Date	Winnipeg		Morden		Brandon		Indian Head		Regina		Saskatoon	
	stem rust	Leaf rust	Stem rust	Leaf rust	Stem rust	Leaf rust	Stem rust	Leaf rust	Stem rust	Leaf rust	Stem rust	Leaf rust
July 2- 3	1	5			1	3	0	0	0	0	0	0
4- 5	1	2	4	21	0	6	1	5	1	11	0	12
6- 7	0	3	2	1	13	5	0	4	2	29		
8- 9	4	29	0	1	19	101	5	86	16	258	0	16
10-11	8	59	4	98	0	3	0	28	1	35	0	25
12-13	1	24	9	75	3	51	1	35	3	45	0	41
14-15	0	5	1	41	5	76	0	26	2	17	0	13
16-17	1	39	2	12	5	114	1	50	1	131	0	28
18-19	5	20	0	12	1	15	0	49	0	49	0	55
20-21	1	150	11	219	8	68	0	25	1	8	0	17
22-23	0	161			2	86	0	61			0	9
24-25	1	80	1	142	13	97	2	315	1	124	5	109
26-27	1	20	0	45	0	20	0	11			0	18
28-29	1	107	4	172	1	99	1	192	11	448	5	159
30-31	1	222			6	459	1	132	4	584	4	378
July Total	26	926	38	839	77	1,203	12	1,019	43	1,739	14	880
Aug. 1- 2	4	244	14	434			14	304	1	1,161	1	355
3- 4	16	1,006	99	2,815	16	1,918	45	7,330	23	12,197	4	1,508
5- 6	43	578			19	897	40	5,700	40	11,317	1	803
7- 8	5	37	0	125	12	2,480	21	4,679	46	30,258	6	2,202
9-10	150	1,381	53	2,527	56	2,146	30	3,565	108	29,379	8	3,418
11-12	28	483	209	5,090	45	2,944	35	4,046	105	28,851	16	1,454
13-14	77	1,446			113	1,959	68	6,685	97	16,419	6	468
15-16	26	145	22	250	13	558	11	424	88	1,396	1	49
17-18	29	218	72	286	6	250	44	1,081	277	4,006	14	400
19-20	33	189	90	394	4	111	396	4,716	213	9,880	62	1,158
21-22	46	208	376	484	21	272	18	180	127	2,220	0	17
23-24	49	81	80	111	29	101	45	155	158	1,466	27	30
25-26			162	203	39	158	70	177	262	5,422	45	66
27-28	260*	294*			45	357	401	1,498	1,436	8,286	56	318
29-30	1,405	2,089	2,688	3,578	227	529	647	3,546	1,930	18,884	88	268
31- 1	288	435	810	1,227	475	2,663	861	2,574	1,044	4,765	34	86
Aug. Total	2,459	8,834	4,675	17,524	1,120	17,343	2,746	46,660	5,955	185,907	369	12,600
1972 Total	2,504	9,878	4,733	18,635	1,215	18,695	2,792	47,938	6,063	188,133	383	13,682
1961-71 Average	3,377	9,439	3,657	14,126	2,492	7,673	1,776	13,661	4,460	43,260	827	19,269

* 4-day exposure.

epidemic of leaf rust that developed on these varieties accounts for the large number of leaf rust urediospores observed on the slides. The oat rusts did not develop sufficiently to produce many spores.

The total number of stem rust spores in 1972 was slightly larger than the 1961-71 average and the 1972 total of leaf rust spores greatly exceeded the average (Table 1).