	Seedling reacti	on or orient	55 OF THE 177	, ormorm N	or a lorri Negi	onari oriorii	and wurse	. , 10 30100101	a isolates Ul	iour rust.	Stillwate
			Cereal Dis	sease Labora	tory, USDA-A	ARS, U. of M Leaf Rust Iso		, MN.			OK*
	Sel No.	TDBM	TCLH	PLLM	TLLC	MGBM	PNMR	KDBM	PLMR	LR GENE?	
	CI1442	S	S	S	S	S	S	S	S	None	S
	Roughrider	S	S	S	S	S	S	S	S	None	S
,	Abilene	S		;1-	;1-	;1-	S	S		24	MS
	Nekota	S	21CN	;12	S	S	S	S	;1,5	+	S
5	ND9257	2CN	;C	;1C	;1C	S	;12C	1C	;1C	10,16	S
)	ND9304	S	S	S	S	S	S	S	S	None	S
,	ND9419	S	S	S	S	S	S	S	S	None	S
3	ND9460	S	;C	:	;1-C	S	;12C	S	;1-C	10	S
)	ND9560	1C	1CN	1CN	1C	S	12C		1C	16	S
0	SD95218	S	S	2	1C	S	X	S	2	+	S
1	SD94149	S	;+1-C	;1C	;1-C	;1-	S	S	;1-C	10,24	MS
2	SD93267	S	,+1-C S	S	1C	, I-	X	S	, 1-C	10,24	S
3		S	S	S	S	S	S	S	S		S
	SD95203		1C			1C	1		1C	None	MS
4	SD94241	12C 1C		1C	12CN	S,;1-C		1CN 1C		16,+	MS
5	NE94654		12CN	;1C	1C		1C		12CN	16,+	S
16	NE94589	S S	S .10	2	.1.0	S .1 C	-	S	;1-C,S	10 000 24	MS
7	NE95473		;1C	;10	;1-C	S,;1-C	S	S	S,;1-C	10,seg 24	S
8	NE95553	2CN,S	1CN,S	;1C,2	;1-C	S,;1-C	Х	2	;1-2C	seg 16,+	
9	NE96435	S	S	2C	2	S	;1C,S	12C	2C	+	MS
20	NE95510	1CN	;+C	;1C	;1C	;	;1C	;+1-C	;	10,26	MS
21	NE96632	S	S	S	S	S	1?	S	S	None	S
2	NE96649	1CN	1CN,;+C	;1C	;1-C	;1,S	S,;1	;+1-C	0;,1C	seg 10,24,26	MS
!3	NW97S195	2CN	1CN	1CN	1CN	S	1C	0	1CN	1,16	MS
24	N96L1226	S	;+C	0	;C	;1	;1C	0	0	1,10,24,2a	MS
25	N96L1229	S	;+C	;1-C	;C	;1-C	S,;1C-	;1-C	;1-C	10,24,+	MS
26	XH1888	;+1C	;C	;	;C	;1-C	;1-C	;1-C	;1-C	10,26	MR
27	XH9806	;+1C	;+C	;	;	;	;	;	;1-C	10,26	MS
28	NH9803	S	S	0;	S	S	S	S	S	+	S
29	T194	S	X	23C	S	Х	S	23C	S	+	S
		S	X				S		S	+	S
	tillwater test: Leaf	S rust reaction	X of seedlings	tested during	the 1998-99 se	eason wasdete	rmined using	a mixture of I	S. triticina ureo		S in 98May
	tillwater test: Leaf	S rust reaction	X of seedlings	tested during ned from seven	the 1998-99 se	eason wasdete terwheat culti	rmined using vars (Big Dav	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	X of seedlings	tested during ned from seven	the 1998-99 se n hard red win	eason wasdete terwheat culti pache, Kingfis	rmined using vars (Big Dav	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	X of seedlings	tested during ned from seven	the 1998-99 se n hard red win e locations (Ap	eason wasdete terwheat culti pache, Kingfis	rmined using vars (Big Dav	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	X of seedlings llection obtain 2174) gr	tested during ted from sever owing at three	the 1998-99 seen hard red win locations (Ap	eason wasdete terwheat culti pache, Kingfis	rmined using vars (Big Dav sher, and Laho	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	X n of seedlings llection obtain 2174) gr	tested during the ded from sever owing at three	the 1998-99 seen hard red wing the locations (Apple LR GE 2A	eason wasdete terwheat culti pache, Kingfis NES	rmined using vars (Big Dav sher, and Laho	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	X n of seedlings llection obtain 2174) gr SET 1 SET 2	tested during led from sever owing at three	the 1998-99 seen hard red win elocations (Ap LR GE 2A 16	eason wasdete terwheat culti pache, Kingfis NES	rmined using vars (Big Dav sher, and Laho 3	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	X n of seedlings: llection obtain 2174) gr SET 1 SET 2 SET 3	tested during led from sever owing at three	the 1998-99 se n hard red win e locations (Ap LR GE 2A 16	eason wasdete terwheat culti pache, Kingfis ENES 2C 24	rmined using vars (Big Dav sher, and Laho	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	x x of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4	tested during led from sever owing at three	the 1998-99 seen hard red win hard red win he locations (Ap LR GE 2A 16 11 18	eason wasdete terwheat culti pache, Kingfis ENES 2C 24 17 21	rmined using vars (Big Dav sher, and Laho	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	x x of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4	tested during and from sever owing at three sever o	the 1998-99 se n hard red win e locations (Ap LR GE 2A 16	eason wasdete terwheat culti- bache, Kingfis ENES 2C 24 17 21	rmined using vars (Big Davsher, and Laho	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	x x of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4	tested during ared from sever owing at three owing	the 1998-99 se in hard red win to locations (Ar LR GE 2A 16 11 18 REACT L	eason wasdete terwheat culti- bache, Kingfis ENES 2C 24 17 21 CION*	rmined using vars (Big Davsher, and Laho	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	x x of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4 CODE	tested during ared from sever owing at three owing	the 1998-99 se in hard red win to locations (Ar LR GE 2A 16 11 18 REACT L	eason wasdete terwheat culti- bache, Kingfis ENES 2C 24 17 21 CION* L	rmined using vars (Big Davsher, and Laho	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	x x of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4 CODE B C D	tested during ared from sever owing at three owing	the 1998-99 se in hard red win hard red win e locations (Ar LR GE 2A 16 11 18 REACT L L L	eason wasdete terwheat culti- bache, Kingfis ENES 2C 24 17 21 CION* L H	s rmined using vars (Big Dav sher, and Laho 26 30 23 L H L	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	x x of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4 CODE B C D F	tested during ared from sever owing at three owing at three owing at three depth of the sever owing at three depth of the sever owing at three owing at thre	the 1998-99 se in hard red win hard red win to clocations (Apr LR GE 2A 16 11 18 REACT L L L L L L	eason wasdete terwheat culti- bache, Kingfis ENES 2C 24 17 21 CION* L H H	s rmined using vars (Big Dav sher, and Laho 26 30 23 L H L H L H	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	x x of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4 CODE B C D F G G	tested during ared from sever owing at three owing at three owing at three last owing	he 1998-99 se n hard red win he locations (Ap LR GE 2A 16 11 18 REACT L L L L H	eason wasdete terwheat culti- pache, Kingfis ENES 2C 24 17 21 CION* L H H L	s rmined using vars (Big Dav sher, and Laho 3 26 30 23 L H L H L H L	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	x X of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4 CODE B C D F G G H	tested during ared from sever owing at three owing at three owing at three last owing	he 1998-99 se n hard red win he locations (Ap LR GE 2A 16 11 18 REACT L L L L H H H	eason wasdete terwheat culti- pache, Kingfis ENES 2C 24 17 21 CION* L H H L L	s rmined using vars (Big Dav sher, and Laho 26 30 23 L H L H L H L	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	X n of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4 CODE B C D F G H	tested during ared from sever owing at three owing	h hard red win he locations (April 1988) 16	eason wasdete terwheat culti- pache, Kingfis ENES 2C 24 17 21 CION* L H H L L H	s rmined using vars (Big Dav sher, and Laho 26 30 23 L H L H L H L H L L	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	x x n of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4 CODE B C D F G H J K K	tested during ared from sever owing at three owing	REACT L L L H H H H	eason wasdete terwheat culti- pache, Kingfis ENES 2C 24 17 21 CION* L H H L H H	s rmined using vars (Big Dav sher, and Lahe 3 3 26 30 23 L H L H L H L H L H L H L H L H L	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	X n of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4 CODE B C D F G H J K L	tested during ared from sever owing at three owing	REACT L L L L H H H L L	eason wasdete terwheat culti- pache, Kingfis ENES 2C 24 17 21 CION* L H H L H H L	s rmined using vars (Big Dav sher, and Lahe 3 3 26 30 23 L H L H L H L H L H L H L H L H L H L	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	X n of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4 CODE B C D F G H J K L M	tested during and from sever owing at three owing a	he 1998-99 se n hard red win he locations (Ap LR GE 2A 16 11 18 REACT L L L H H H H H L L L	eason wasdete terwheat culti- pache, Kingfis ENES 2C 24 17 21 TION* L H H L L H H L L	s rmined using vars (Big Dav sher, and Lahe 3 3 26 30 23 L H L H L H L H L H L H L H L H L H L	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	X n of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4 CODE B C D F G H J K L M N	tested during led from sever owing at three owing at three owing at three led from sever owing a	REACT L L L L L L L L L L L L L L L L L L L	rason wasdete terwheat cultipache, Kingfis NES 2C 24 17 21 TION* L H H L L H H H L	S rmined using vars (Big Dav sher, and Lahe 3 26 30 23 L H L H L H L H L	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	X n of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4 CODE B C D F G H J K L M N P	tested during led from sever owing at three owing a	REACT L L L L L L L L L L L L L L L L L L L	rason wasdete terwheat cultipache, Kingfis NES 2C 24 17 21 TION* L H H L L H H H H	S rmined using vars (Big Dav sher, and Lahe 3 26 30 23 L H L H L H L H L	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	X n of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4 CODE B C D F G H J K L M N P Q	tested during led from sever owing at three owing a	REACT L L L L L H H H H L L L L L L L L L L	rason wasdete terwheat cultivaries (Inc.) 2C 24 17 21 ICON* L L L H H H L L L H H H L L L H H H L L L H H H L L L H H H H L L L H H H H L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L L H H H H L L L L L H H H H L	S rmined using vars (Big Dav sher, and Lahe 3 26 30 23 L H L H L H L H L H L	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	X n of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4 CODE B C D F G H J K L M N P Q R	tested during led from sever owing at three owing a	REACT L L L L L H H H H H H H H H H H H H H	rason wasdete terwheat cultivate	S rmined using vars (Big Dav sher, and Lahe 3 26 30 23 L H L H L H L H L H L	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
St	tillwater test: Leaf	S rust reaction	X n of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4 CODE B C D F G H J K L M N P Q R S	tested during led from sever owing at three owing a	REACT L L L L L H H H H L L L L L L L L L L	rason wasdete terwheat cultivaries (Inc.) 2C 24 17 21 ICON L L L H H H L L L H H H L L L H H H L L L H H H L L L H H H H L L L H H H H L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L H H H H L L L L L H H H H L L L L L H H H H L	S rmined using vars (Big Dav sher, and Lahe 3 26 30 23 L H L H L H L H L H L	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May
	tillwater test: Leaf	S rust reaction	X n of seedlings llection obtain 2174) gr SET 1 SET 2 SET 3 SET 4 CODE B C D F G H J K L M N P Q R	tested during led from sever owing at three owing a	REACT L L L L L H H H H H H H H H H H H H H	rason wasdete terwheat cultivate	S rmined using vars (Big Dav sher, and Lahe 3 26 30 23 L H L H L H L H L H L	a mixture of I wg, Chisholm,	P. triticina urec Custer, Jagge	+ liospores collected	S in 98May

L = LOW INFECTION TYPE H = HIGH INFECTION TYPE