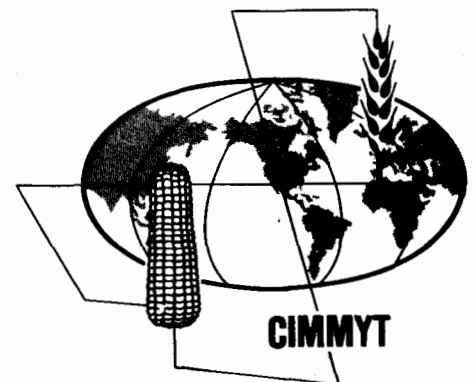


November 1970

**REPORT ON THE IDENTIFICATION OF STEM
AND LEAF RUST RESISTANCE
FOR THE**

**SECOND INTERNATIONAL DURUM
SCREENING NURSERY**



**CENTRO INTERNACIONAL DE MEJORAMIENTO DE MAIZ Y TRIGO
INTERNATIONAL MAIZE AND WHEAT IMPROVEMENT CENTER**
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Late returns lead to serious delays in publication of the results and reduce their value to wheat workers throughout the world.

Second International Durum Screening Nursery
Report on the Identification of Resistance to
Puccinia graminis tritici and Puccinia recondita

This summary is intended to supply the cooperators of the Second International Durum Screening Nursery with information on the more desirable seedling and adult plant responses to selected races of stem rust. Additional data is offered on seedling stage leaf rust resistance. We hope that this information will be of value to participating cooperators.

STEM RUST

Seedling response: Four selected races of Puccinia graminis tritici were used to test seedling resistance under greenhouse conditions to all entries of the Second IDSN. The races, selected for combinations of genes for pathogenicity, were 15-2,3,4,7; 151-1,2,3,6; 151-4,6 and 12-1,2,3,6 and are identified in the table headings as A, B, C and D respectively. The numbers 15, 151 and 12 correspond to the international standard race system of classification and further identity is provided where 1 = Sr 6, 2 = Sr 11, 3 = Sr 9b, 4 = Sr Tt, 6 = Sr 8 and 7 = Yuma resistance.

Adult plant response: Race A (identified above) was used to test all of the Second IDSN entries for adult plant resistance.

Results: Second IDSN entries showing an acceptable degree of resistance in both the seedling and adult plant stages of growth to all or most of the races of stem rust employed are listed in Table 1. Table notations indicate susceptible, segregating or "X" type reactions to the specific race. Adult plant reaction notations are those commonly used in scoring field reactions to the rusts.

LEAF RUST

Seedling response: Two strains of Puccinia recondita were used to test in the greenhouse the seedling reaction of the entries of the Second IDSN. These two cultures, identified as distinct on several varieties and CIMMYT lines are tentatively designated herein as cultures 1 and 2 and until more information becomes available on their proper race classification.

Results: Second IDSN entries which exhibited resistance to both cultures of leaf rust in the seedling stage of growth are identified in Table 1 with an asterisk next to the row number.

TABLE 1 Entries of the Second International Durum Screening Nursery which apparently possess an acceptable level of resistance to *Puccinia graminis tritici* (stem rust) in both the seedling and adult plant stage of growth. Tabular notations are S (susceptible), R/S (segregating) and X (X type reaction). The absence of notation indicates resistant reaction. Adult plant reaction notations are the commonly used system of recording field scores. Entries which showed seedling resistance to *Puccinia recondita* (leaf rust) are noted with an asterisk next to the Row Number. A dash (-) indicates missing data.

IDSN Row No.	Variety or Cross	Pedigree	Reaction				
			Seedling				Adult
			Race A	Race B	Race C	Race D	Race A
02	Stewart 63		-		-		0
03	Leeds				-		0
010 *	Booby "S"	D-21263-5y-1y-2y-4m-2y-100m	S				5S
014	$\left[(TAC_E - Tc^4)^2 (Z-B.W) AA "S" \right]$	D-28932-11y-3m-0y					TrMR
015	$\left[(TAC_E - Tc^4)^2 (Z-B.W) AA "S" \right]$	D-28932-11y-4m-0y					5MR
019	Cr "S"/B. Bal-By _E ² -Tc	D-28980-28y-7m-0y			-		0
021 *	Cr "S"(TAC _E -Tc ⁴) ² (Z-B.W)	D-28984-44y-1m-0y			X		0
022	Cr "S"(TAC _E -Tc ⁴) ² (Z-B.W)	D-28984-46y-4m-0y					0
024	BY _E -Tc x AA "S"	D-27512-9m-7y-3m-0y					5R
025 *	BY _E -Tc x AA "S"	D-27512-16m-5y-2m-0y			-		0
028 *	LD357 E-Tc ² x AA "S"	D-27524-4m-1y-3m-0y	S	X			5MS
029 *	LD357 E-Tc ² x AA "S"	D-27524-12m-1y-1m-0y			-		5MR
042 *	LD357 E-Tc ² / Jo "S"	D-27534-14m-1y-6m-0y					TrMR
046	BY _E ² -Tc x TAC _E -Tc ³ /AA "S"	D-27547-4m-8y-1m-0y	S	X			10S
058	BY _E ² -Tc x TAC _E -Tc ³ /B-Bal x BY _E ² -Tc	D-27550-9m-5y-1m-0y			-		5MR
060 *	Brant "S"	D-24102-9y-3m-0y	S	X			TrMS
066	Jo "S" x AA "S"	D-27575-6m-5y-2m-0y					0
067 *	Jo "S" x AA "S"	D-27575-6m-5y-4m-0y					0
077 *	Jo "S"(61-130 x 60-115/TM _E -Tc ² x Z-B.W)	D-27582-8m-6y-3m-0y					5MR
079 *	Jo "S"(61-130 x 60-115/TM _E -Tc ² x Z-B.W)	D-27582-8m-6y-5m-0y			-		10MR
084 *	Jo "S"(61-130 x 60-115/TM _E -Tc ² x Z-B.W)	D-27582-8m-13y-2m-0y					10MR
085 *	Jo "S"(61-130 x 60-115/TM _E -Tc ² x Z-B.W)	D-27582-8m-13y-4m-0y					5MR, 30MS
086 *	Jo "S"(61-130 x 60-115/TM _E -Tc ² x Z-B.W)	D-27582-9m-8y-1m-0y					TrMR
089	Jo "S"(LD357 E-Tc ² /TM _E -Tc ² x Z-B.W)	D-27588-5m-2y-5m-0y					0
090	Jori C-69						TrMR

IDSN Row No.	Variety or Cross	Pedigree	Reaction					
			Seedling				Adult	
			Race A	Race B	Race C	Race D	Race A	
0108	Jo "S" x Cr "S"	D-27591-12m-1y-3m-0y						0
0112 *	RA _E -Tc ⁴ x Stw 63/AA "S"	D-27617-9m-1y-4m-0y						0
0113 *	RA _E -Tc ⁴ x Stw 63/AA "S"	D-27617-9m-5y-5m-0y						0
0116 *	RA _E -Tc ⁴ x Stw 63/AA "S"	D-27617-18m-5y-2m-0y						-
0117 *	RA _E -Tc ⁴ x Stw 63/AA "S"	D-27617-18m-6y-1m-0y						0
0118 *	RA _E -Tc ⁴ x Stw 63/AA "S"	D-27617-18m-6y-2m-0y						0
0125 *	BY _E -Tc x TAC _E -Tc ³ /AA "S"	D-27625-5m-1y-4m-0y	S		-			10S
0131 *	AA "S"/B.Bal x BY _E ² -Tc	D-27660-2m-1y-3m-0y		-				0
0132 *	AA "S"/B.Bal x BY _E ² -Tc	D-27660-2m-1y-4m-0y						5MR
0133	AA "S"/B.Bal x BY _E ² -Tc	D-27660-6m-1y-1m-0y						0
0134	AA "S"/B.Bal x BY _E ² -Tc	D-27660-6m-1y-3m-0y						5MR
0135	AA "S"/B.Bal x BY _E ² -Tc	D-27660-6m-1y-5m-0y		R/S	R/S			5MR
0136	B.Bal x BY _E ² -Tc/AA "S"	D-27664-4m-1y-5m-0y						5MR
0137 *	B.Bal x BY _E ² -Tc/AA "S"	D-27664-9m-4y-3m-0y						5MR
0138	B.Bal x BY _E ² -Tc/AA "S"	D-27668-3m-1y-4m-0y						5MR
0139	B.Bal x BY _E ² -Tc/AA "S"	D-27668-3m-1y-5m-0y		R/S				0
0141	B.Bal x BY _E ² -Tc/Cr "S"	D-27676-6m-1y-3m-0y			R/S			0
0142	B.Bal x BY _E ² -Tc/Cr "S"	D-27676-6m-1y-4m-0y			-			TrMR
0143	B.Bal x BY _E ² -Tc/Cr "S"	D-27676-7m-1y-1m-0y			-			5MR
0145 *	B.Bal x BY _E ² -Tc/Cr "S"	D-27676-10m-1y-2m-0y	S					5MS
0146 *	B.Bal x BY _E ² -Tc/Cr "S"	D-27676-10m-4y-1m-0y	S	X			X	TrMS
0152	Z-B.LK x 60-120/TM _E -Tc ² x Z-B.W	D-26813-43y-1m-1y-1m-0y					-	10MR
0153	Z-B.LK x 60-120/TM _E -Tc ² x Z-B.W	D-26813-43y-1m-1y-2m-0y						10MR
0154	TM _E -Tc ² x 1-B.W/60-115 x 56-1	D-26829-6y-2m-1y-1m-0y	S					Seg 5MR,40
0155 *	TM _E -Tc ² x 1-B.W/60-115 x 56-1	D-26829-6y-2m-1y-3m-0y	S	X				10MS
0156 *	TM _E -Tc ² x Z-B.W/60-115 x RL.3601	D-26830-2y-1m-1y-1m-0y						20MR
0157 *	TM _E -Tc ² x Z-B.W/60-115 x RL.3601	D-26830-2y-1m-1y-3m-0y						10MR
0159 *	TM _E -Tc ² x Z-B.W/60-115 x RL.3601	D-26833-9y-2m-2y-1m-0y						10MR
0165 *	TM _E -Tc ² x Z-B.W/60-115 x RL.3601	D-26833-12y-1m-3y-2m-0y						20MR
0166	TM _E -Tc ² x Z-B.W(St-LD 379 x LD 357/DW.F4 L dn)	D-26838-6y-1m-3y-1m-0y						5MR
0167	TM _E -Tc ² x Z-B.W/BY _E -Tc ⁴	D-25612-5m-2y-1m-1y-1m-0y	S					5MR
0168	TM _E -Tc ² x Z-B.W/BY _E -Tc ⁴	D-25612-5m-2y-1m-1y-2m-0y						5MR
0169 *	TM _E -Tc ² x Z-B.W/BY _E ² -Tc x Z-B.W	D-25624-7m-2y-1m-3y-1m-0y					-	20MR

0171 *	$TM_E - Tc^2 \times Z-B.W / BY^2_E - Tc \times Z-B.W$	D-25624-7m-2y-1m-5y-2m-0y							5MR
0172 *	CRANE "S"	D-23055-56m-5y-1m-0y							5MR
0173 *	LD357 _E -Tc ² x Jo "S"	D-27534-1m-3y-0m					X		5MR
0180 *	Brant "S"	D-24102-9y-3m-0y	S						TrMR
0181 *	$RA_E - Tc^4 \times Stw 63/AA$ "S"	D-27617-18m-3y-0m							5MR
0182 *	$RA_E - Tc^4 \times Stw 63/AA$ "S"	D-27617-18m-5y-0m							5MR
0183 *	$RA_E - Tc^4 \times Stw 63/AA$ "S"	D-27617-18m-6y-0m							0
0184 *	B.Bal x $BY^2_E - Tc/AA$ "S"	D-27664-9m-4y-0m						-	5MR
0185 *	B.Bal x $BY^2_E - Tc/Cr$ "S"	D-27676-1m-1y-0m	S		X			R/S	0
0189	(Z-B.LK x 60-120/ $TM_E - Tc^2 \times Z-B.W$)	D-26813-43y-1m-1y-0m							20MR
0190 *	$TM_E - Tc^2 \times Z-B.W/60-115 \times 56-1$	D-26829-6y-2m-1y-0m	S		X			X	5MR
0191 *	$TM_E - Tc^2 \times Z-B.W/60-115 \times RL-3601$	D-26833-12y-1m-1y-0m							10MR
0192 *	$TM_E - Tc^2 \times Z-B.W/60-115 \times RL-3601$	D-26836-1y-1m-1y-0m						-	5MR
0193 *	$TM_E - Tc^2 \times Z-B.W/60-115 \times RL-3601$	D-26836-6y-4m-1y-0m							0
0194	$\lceil (TM_E - Tc^2 \times Z-B.W)(BY-180 \times LK/GZ-220 \times 61-130) \rceil$	D-26842-21y-3m-0m						-	5MR
0195 *	B.Bal x $BY^2_E - Tc$	D-25550-10m-5y-1m-2y-0m							5MR
0199	CRANE "S"	D-23055-56m-1y-1m-0y							0
0202	B.Bal x $BY^2_E \times Tc$	D-25550-10m-5y-1m-2y-1m-0y							5MR
0206	$TM_E - Tc^2 \times Z-B.W/60-115 \times 56-1$	D-26829-6y-1m-0m	S						TrMS
0209	Jo "S"(61-130 x 60-115/ $TM_E - Tc^2 \times Z-B.W$) \rceil	D-27582-8m-12y-0m							10MR
0211	Jo "S"(LD357 _E -Tc ² / $TM_E - Tc \times Z-B.W$)	D-27588-5m-2y-0m							5MR
0220	(B.Bal x $BY^2_E - Tc$)(D.Buck x $TM_E - Tc^2/LK$) \rceil	D-27666-4m-1y-0m							0
0222 *	CRANE "S"	D-23055-56m-5y-2m-0y							0
0223 *	CRANE "S"	D-23055-56m-5y-3m-0y			X				5MR
0226	B.Bal- $BY^2_E \times Tc$	D-2550-3m-3y-3m-0y	S			X			10MS
0227 *	CRANE "S" _E	D-23055-56m-5y-2m-0y							0
0230	Jo "S"/61-130 x 60-115	D-26844-29y-4m-0y							0
0232	Jo "S"/61-130 x 60-115	D-26844-18y-4m-0y							0

